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ORIGINAL ARTICLES

HEREDO-SYPHILITICS AND THEIR DETECTION*

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Before taking up the question of hereditary syphilis, it will be necessary to review briefly acquired syphilis.

Syphilis is an infectious disease, chronic in course, protean in character, acquired by contact, or transmitted by inheritance. Osler in a remarkably clear and comprehensive statement, sums up the whole question of syphilis:

> Syphilis, which begins its pathologic existence as a modest, inactive Hunterian chancre, soon enters upon a career that is unsurpassed for inclusiveness and variety of its manifestations. There is no organ of the body, nor any tissue of the organs, which syphilis does not invade, and it is manifestly difficult to speak, at least at all concisely, of the pathology of the disease, just as it is almost impossible to describe its clinical symptoms without mentioning almost every symptom of every disease known.

"Syphilis never kills" is an old saying, borne out by the mortality records of all cities, for it is rare indeed that the disease is recorded as the cause of death in health department certificates, or ever freely acknowledged by its victims. This would lead to the belief that it is a rare disease. Nothing could be farther from the truth, for not only is it the most widely disseminated of all the acute infectious diseases among all classes and conditions of peoples, but is the most formidable, the most terrible and the most deadly. Statistics on the frequency of the disease among the population are impossible to obtain. The most reliable with which I am acquainted are those of Erb. He found in 10,000 cases of all varieties of disease in his practice, excluding locomotor ataxia of the better class of men, 21.57 per cent. had syphilis. He believes that 12 per cent. of the population of Berlin has syphilis. Blashke asserts that every unmarried man in Berlin below 30 will have gonorrhea twice, and every fourth or fifth, syphilis. Neisser of Breslau

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asserts that 75 per cent. of the adult male population have gonorrhea and 15 per cent. syphilis. Dr. Prince Morrow estimates the number of syphilitics in the United states as over 2,000,000.

The cause of syphilis, the *Spirochæta pallida*, was discovered by Schaudinn in 1905. It is a long, delicate, spiral, non-refractive, motile organism belonging to the group protozoa. It multiplies by division through its length and with the ultra microscope small dark bodies can be seen within the organism which are thought by some observers to be the spores, or at least a resting stage of the spirillum. That these dark bodies are a resting, intermediate or intracellular stage of the spirochete has not been proved, yet there is much strong evidence in support of it. It grows and multiplies rapidly in the tissues of its victims, but so far has not been grown successfully on artificial media outside of the body. It therefore answers only one of Koch's postulates, but nevertheless is accepted by syphilographers and laboratoreans the world over, with a "probability resting on a certainty" as the causal agent of syphilis.

In the beginning the *Spirochæta pallida* undoubtedly lead a saprophytic existence on the surface of the skin or mucous membranes, but later acquired pathogenic powers enabling it to penetrate the living tissues and produce widespread pathologic wreckage. Hence it always displays an affectionate predilection for the skin or surfaces covered with squamous epithelium. It very probably cannot penetrate the intact epithelium but it is certain that it does find entrance through minute cracks in the surface of the skin or mucous membranes. At the point of entrance, a slight reddening of the skin appears which spreads and a papule forms; later the top of the papule ulcerates. This is the chancre or primary stage of syphilis. From the chancre the spirochete forces its way into the lymphatic vessels and travels quickly to the nearest glands. In persons killed during the primary stage of the disease with the chancre on the genitalia, not only the inguinal glands, but the iliac and aortic lymphatic glands have been found involved. Up the lymphatic ducts the spirochetes slowly travel until the veins in the upper thorax are reached, whence they are discharged in ever increasing numbers. Once in the blood stream they are quickly carried to every tissue of the body. Although the spirochete now has every tissue of the body at its mercy, it nevertheless displays its affection for the skin by growing in and producing on it the characteristic eruptions of the disease. This is the secondary stage of the disease and appears in from forty to sixty days after the advent of the chancre. The primary and secondary are the highly contagious stages of the disease. The tertiary stage was heretofore considered non-contagious, but within the last few years it has been shown that gummata contain active spirochetes and successful inoculations have been made with them, proving their contagiousness. The tertiary stage is one of infective granulomata, and the lesions appear, as a rule, from the first year onward, although in rare cases the tertiary may impinge on the secondary symptoms. Usually there is a period of apparently perfect health between the secondary and tertiary phenomena. Fournier's figures of 4,400 cases of tertiary syphilis showed 188 cases during the first year after infection,

453 during the second, 471 during the third, and 388 during the fourth, the number falling rapidly during each succeeding year, but the possibility of tertiary lesions occurring remains for fifty years or longer.

Gummata.—When a spirochete finds entrance into the body and comes in contact with a cell, it sets up an irritation in that cell. The resulting irritation incites mitosis and the cell divides. Every cell in contact with the spirochete is thus stimulated to division, and it is soon surrounded by a wall of dividing cells. At the same time the defensive cells of the body, the lymphocytes, are attracted chemotactically to the fray and crowd in and around the spirochete in an effort to help build up a retaining wall about the organism. In spite of all this activity on the part of the tissues to corral the spirochete, it is apparently not in the least disconcerted, but goes on about its lifework of growing and reproducing its kind.

The result of this growth and multiplication is the production of toxins which poison the surrounding tissue cells and they undergo fatty degeneration, later necrosis and finally cheesy degeneration. The toxins, however, attract increasing numbers of lymphocytes and the walls about the spirochetes increase in thickness; finally a thick fibrotic membrane forms all around the mass. The battle between the spirochete and the tissues results in the production of various sized tumors, some as small as a pin head and others as large as an orange; this is the granulation tumor or gummata of the disease. Gummata may develop in any organ of the body and always do so at the expense of that organ. The gravity of the gummata, therefore, depends on the organ involved.

Arteries.—It is said that "Venus loves the arteries," for the arterial system is early involved in syphilis and next to the skin receives the brunt of the attack. In fact, the effects on the arteries are so conspicuous, so extensive, so dramatically grave, that some observers look on syphilis as exclusively a cardiovascular disease. In syphilis the veins are rarely involved, but the arteries suffer from the very beginning. Here a brief description of an artery and the way in which syphilis affects it is necessary to a comprehension of the pathology of the disease. Arteries may be divided into two great classes, a muscular type and an elastic type. An artery is a flexible tube made up of three layers of tissue: an inner layer, a middle layer and an outer layer known as intima, media and adventitia. The inner layer is composed of endothelial cells lying on a connective tissue base. The middle layer is composed of muscular tissue, of yellow elastic tissue, or both; and the outer layer of connective tissue, lymphatics, blood vessels and nerves. The nerve supply is received from the sympathetic system and consists of vasodilator and vasoconstrictor nerves. By means of these nerves, the artery may be dilated or constricted automatically at the need of the body.

The artery does not receive its nourishment from the blood flowing in it, but from small arteries which enter the outer layer and are distributed to it and the middle layer.

Early in the disease the spirochetes are carried by the blood supply into the middle and outer coats of the artery. Here their presence and

their toxins set up an irritation which excites division of the fixed tissue cells, and causes the invasion of the tissues by lymphocytes and plasma cells, resulting in a marked thickening of the middle and outer coats. The marked thickening of the middle coat necessarily narrows the caliber of the tube; this narrowing may go on to complete obstruction, with proliferation and exfoliation of the inner layer: true endarteritis obliterans. Further the thick and clumsy artery does not respond readily to the vasodilator and vasoconstrictor nerves. The gravity of this is easily comprehended when the arteries of the brain or the heart are diseased, and the tissues to which they are distributed fail to receive proper nourishment. When the arteries of the brain are involved a train of nervous phenomena is marshalled forth, from psychic disturbances and mild paralysis up to widespread areas of softening and certain death. When the coronary arteries are involved, the results are immediate and very disastrous, as will be shown later. The round cells which accumulate in the middle and outer coats of an artery, rarely undergo necrotic changes, but pass on to fibrosis, resulting in a hardening and thickening of the vessels so that the boundary between these two layers is lost. This fibrotically thickened arterial wall never possesses the resiliency and strength of the normal artery. For this reason syphilitic disease of the arteries is the most prominent cause of aneurism, especially of the aorta. There is nothing in what has been described here which absolutely distinguishes syphilitic arteritis from arteriosclerosis, but attention is called to the fact that syphilis is a very important cause of arterial disease.

Parasyphilitic Affections.—While in a great majority of cases the *Spirochæta pallidæ* exhibit a decided affinity for surfaces covered with squamous epithelium, nevertheless it would seem that there are some strains of the spirillum which show an elective affinity for nervous tissues. The invasion of the body by them is followed by the mildest type of secondary eruptions, or with an eruption so fleeting as to vanish unobserved. These are the so-called mild types of syphilis, but which later develop grave lesions of the nervous system, the most prominent of which are locomotor ataxia and general paralysis of the insane.

Erb, in 1,100 cases of locomotor ataxia which came under his personal observation, found that 90 per cent. had a history of syphilis, and in only 3 per cent. could syphilis be excluded, and similar evidence in regard to general paralysis could be quoted. These affections of the nervous system appear as a rule long after all evidence of syphilis has disappeared, and hence it is manifest that syphilis has a tendency to produce certain changes of a degenerative nature in the nervous system of its victims long after all evidence of the disease has vanished.

Syphilization.—The malignancy of the *Spirochæta pallida* depends on the virulence of the organism and the resistance of the individual affected.

$$M = \frac{V}{R}$$

The capacity of resistance may be racial or individual. In a country where syphilis has been endemic for centuries, what may be called a racial immunity becomes manifest. Not only does the disease affect a certain percentage of the

population, but being eminently inheritable, it affects in a lesser degree a large percentage of those who have not directly suffered from the primary disease, and thus there come about what has been called "syphilization" of the community in the sense that almost every one has some ancestral taint, recent or remote, and what is more important, a certain degree of immunity.—(F. W. Andrewes.)

The assertion of racial immunity by syphilization is supported by a mass of convincing evidence, and finds especially strong confirmation in the effect of the disease on a race virgin to it. The history of syphilis affords many such occurrences from the first infection of the sailors of Columbus by the American aborigines, down to recent reports from Uganda.[1]

Inheritance.—Syphilis may be acquired directly, acquired congenitally, or inherited. In a great majority of cases, fully 90 per cent., syphilis is acquired in sexual congress. The remaining 10 per cent. is accidental or otherwise. There is a marked distinction between inherited and congenital syphilis. Inherited syphilis is due to syphilitic influences affecting the ovum or spermatozoon before or at the moment of fertilization, while congenital syphilis is syphilis acquired within the mother's womb or at the time of birth, before complete separation from the mother.

Inheritance is to receive from one's progenitors one's mental and physical constitution. The individual begins to be the moment fecundation is accomplished, the moment the nuclear material of the spermatozoon fuses with the nuclear material of the ovum, and the two become one. It is at the moment of fusion that the new individual begins its inheritance. Any influence acting upon and modifying it after that moment is something acquired by what is already a separate entity. It is not inherited, but congenital.

That alone therefore, is inherited which is the property of the individual at the moment of its becoming an individual, which is part and parcel of the material germ plasm from which he originates, or is provided by the interaction of the same. What is the property of the individual from the moment of beginning existence need not show itself for many years, such as premature baldness, inheritance of gouty or diabetic tendency after 35. (Adami.)

In the inheritance of morbid conditions of syphilis, the same rule applies. If the father have syphilis, but not in an active state, so-called cured syphilis, his children will exhibit stigmata of syphilis. If the mother have syphilis, not in an active stage, her children will exhibit stigmata of syphilis, but more markedly than when the father alone is infected. When both parents have syphilis, in a non-active condition, their children will exhibit syphilitic stigmata much more markedly than when either parent alone has it. Children of such syphilitically infected parents, while exhibiting no active signs of the disease, do exhibit certain stigmata, such as fetal cachexia, malnutrition, senile expression, malformations, arrested development of the bony skeleton and teeth. These characteristics are presumably due to action of the toxins of the *Spirochæta pallida* on the germ cells of the parents.

In confirmation of these statements, we have a number of experimental observations, the most striking of which are those of Lusty and Carriere, quoted by Adami.[2]

1. Lambkin, F. J., Colonel R. A. M. C.: "An Outbreak of Syphilis in a Virgin Soil; Notes on Syphilis in the Uganda Protectorate."
2. Principles of Pathology, Vol. I.

Man himself is difficult to deal with, but it is when we come to direct observation upon animals that we gain the surest effect of parental intoxication. Here some of the most instructive figures are those of Carriere on guinea pigs. He inoculated his guinea pigs over a period of several months with various soluble products of the tubercle bacillus, making altogether thirty separate matings in the course of two years. His results may be summed up in the following tables:

	Stillborn.		Dying 16th Day.		Surviving.		
	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	Total Born
Male and female both inoculated	13	52.0	7	28.0	5	20.0	25
Female inoculated....	7	26.9	9	34.0	10	38.4	26
Male alone inoculated	5	16.6	3	10.0	22	73.0	30

Influence of intoxication greatest when both parents were subjected to inoculation, least when male alone was treated. But here, although there were ten matings, the average litter was only three, whereas the average litter of healthy guinea pigs is between four and five, and of those born 16.6 per cent. were born dead; and of twenty-two that survived beyond the sixteenth day seven are described as weaklings. There can be no doubt that a bacterial poison such as the products of the tubercle bacillus has a distinct action on the paternal germ plasm, as indeed upon the female.

We have the figures of Constantine Paul of the effect of saturnine poisoning of men working in lead, the wives not being subjected to the same effects, and of women exposed to lead poisoning. What is here recorded of experiments on animals can very well be applied to men, especially those affected with syphilis.

The heredo-syphilitic receives a two-fold baleful heritage. In the first place, the germ plasm from which he received his being is injured by the baptism of syphilitic toxins to which it is subjected while resident in the diseased parents. Secondly, while in the womb it becomes inoculated with the virus of the disease, which penetrates every organ and tissue of the body, producing the same widespread morbid reactions recorded in the foregoing, of acquired syphilis. When all these factors are taken into consideration, it is difficult to understand why all heredo-syphilitics are not still-born.

In fact, inherited syphilis is the cause of a fearful waste of life. According to the statistics of maternity hospitals with their underfed, unhealthy applicants, over 70 per cent. of all syphilitic babies die in their first year. Even among the better classes where every possible care is available, the brutally murderous effect on the offspring is appalling. Dr. Hochsinger's statistics, quoted below, show that 55 per cent. of the offspring of syphilitic parents of the well-to-do classes treated by him die before the fourth year.

Dr. Hochsinger, at a recent meeting of the Gesellschaft der Aerzte in Vienna, discussed the results of a series of investigations, extending over twenty-five years, into the ultimate fate of children whose parents had contracted syphilis before the children's birth. Only the better classes of the population were considered, and of these only families in which the doctor had opportunity of constantly observing parents and children for a long period.

Altogether, 139 families with 569 children were observed. The 139 women had 362 syphilitic infants born alive, 253 dead babies and 53 living non-syphilitic children. Of the 263 affected children born alive, 55 died before reaching the age of four, so that 208 individuals were the subjects of prolonged observation. Only 25 per cent. of all of them remained alive and without any attacks. All other patients have shown during their life symptoms of disease traceable directly to syphilis. Apart from manifestations on the skin and mucous membranes, especially affections of the nervous system, together with moral insanity, were most frequent. The well-known fact that hereditary syphilis plays a prominent part in the etiology of these conditions is borne out very well. On the other side, it was shown that if hereditary syphilitic persons remain healthy up to the age of puberty, the expectation of a healthy future life is justified.

The most frequently attacked organs were in the new-born, the skin, the nose, then the viscera. The first-born child is generally more severely attacked than the second; this more than the third, and so on. Also the number of recidives declines with the increasing number of children. Out of 123 first-born children, 93 (or 73 per cent.) had recurrences; out of 55 second-born babies only 24 (or 45 per cent.) had recurrences; and out of 21 third children only 8 (or 38 per cent.) had recurrences. Where maternal syphilis was manifest, the children most often had developments of the disease, showing that the maternal affection seriously influences the fate of the children. The characteristic feature of the late hereditary syphilis was always the gumma; infantilism and general maldevelopment were frequent. Chronic headache is a very frequent concomitant, and very often a characteristic feature of hereditary syphilis. The absence of Hutchinson's symptoms as well as the fairly favorable results during the observations seem to show that an energetic long-continued anti-syphilitic treatment may do much good for the unhappy offspring of a tainted family.

We have seen that syphilis is a widely disseminated and formidable disease, and that it not only seriously diseases those who acquire it even unto death, but, as will be shown further along, their progeny for several generations after them.

It causes in those who acquire it:

1. Diseases of the central nervous system; apoplexy before 50, especially after 40; cerebral softening due to endarteritis obliterans; meningitis of the brain and spinal cord; locomotor ataxia and general paralysis of the insane; dementia paralytica; dementia precox.

2. Diseases of the circulatory system: arteritis, aneurysm, angina pectoris before 40, cardio-vascular-sclerosis, myocarditis, coronary arteritis before 40 or 50. It induces tuberculosis of the lungs in its early and later stages and diseases of the liver and kidneys.

It causes in those who inherit it:

Imbecility, idiocy, epilepsy, chorea, hydrocephalus, endarteritis-syphilitica, encephalitis, juvenile general paralysis, locomotor ataxia, deafness without otorrhea, interstitial keratitis, fetal cachexia, malnutrition, senile expression, malformations, arrested development of the bony skeleton and teeth, precocity and infantilism.

In the heredo-syphilitics who reach maturity, it induces early arterio-sclerosis, nephritis, apoplexy, paresis, disorders of the liver and all kinds of degenerations.

Within the last five years a great advance has been made in the clinic and microscopic study of syphilis, especially hereditary syphilis.

From the clinical side we have Edmond Fournier's admirable work, "Recherche et Diagnostic de L'Heredo-Syphilis Tardive," which appeared

in 1907, a mine of carefully collected data, admirably arranged. It has not been translated into English, but a very good German translation has been recently published.

Fournier shows that the heredo-syphilitic is as a rule small in stature, often a dwarf. Bodily development is below the normal for age; head abnormally large, badly formed or irregular, "Parrot's nodes"; bones irregular and ill-shaped or insufficiently ossified; bridge of nose depressed, several types; evidence of secondary and tertiary skin lesions; scars particularly about the mouth (rehagades); interstitial keratitis or iritis; deafness without otorrhea; testicle on one or both sides atrophied; teeth of Hutchinsonian type. He asserts that there are four, possibly five pathognomonic signs of heredo-syphilis: (1) the Nateform cranium; (2) Hutchinson teeth—upper incisors converging, obliquely set, chisel-shaped with semi-lunar indentations; (3) the sword-shaped tibia; (4) screw-driver shaped incisors; (5) cuspidian erosion of the large primary molars.

In February and May, 1910, Dr. W. W. Graves presented to the St. Louis Medical Society two separate papers on the "Scaphoid Scapula." One was published in the *Medical Record*, May 21, 1910; the other in the *Journal A. M. A.*, July 2, 1910. Both are important contributions to the literature of hereditary syphilis and merit most careful study.

Of the recent laboratory discoveries we have the Wassermann reaction for the detection of syphilis, the Nonne-Appelt test, the lymphocytic count of the spinal fluid, and Luedde's modification of Czapski's corneal microscope for the study of the superficial blood-vessels of the eye.

With the Luedde-Czapski microscope, the blood-vessels of the cornea can be greatly magnified, the blood seen coursing through them, the corpuscles watched floating in the stream, and the vessels' walls studied; whether thickened, crinkled or aneurismal. It is indeed a remarkable advance in the study of the living blood-vessels, and is destined to become of great practical utility.

Through the kindness of Dr. Graves I am enabled to show you a normal scapula and two scaphoid scapulæ, and a series of very good photographs of scaphoid scapulæ subjects. Dr. Graves states that the "scaphoid scapula is an anomaly in development, originating in the progeny from some abnormal circumstance operating in the parents; is thereafter transmitted from parent to child, and so on through several generations, and unless the abnormal circumstance again becomes operative in the descendants, the scaphoid scapula finally disappears, and the racial type again becomes predominant."

Note in this normal scapula, which I hold up for your inspection, that the vertebral border from the spine to the apex is convex. This is characteristic of the normal scapula. In the two scapulæ which I now show you, note that one vertebral border is straight while the other is concave; these two bones are scaphoid scapulæ. The other points of difference between the normal and the scaphoid type are as follows: in the scaphoid type the scapular index is, as a rule, less; i. e., the bone is

longer in proportion to its breadth than in the normal. The vertebral border in the scaphoid type more nearly parallels the long scapular axis, and the spine forms more nearly a right angle with the long scapular axis than the spine of the normal. Dr. Graves speaks of vertebral border buds, which are in evidence on these two abnormal bones. Dr. Graves has traced hereditary syphilis from known syphilitic parents through their offspring to the third generation and in other cases back from the offspring to the diseased parents; verily, emphasizing the scriptural injunction that the sins of the parents shall be visited on their children even unto the third and fourth generation. The heredo-syphilitic is a blighted individual, and the degenerations exhibited in the bony skeleton and teeth (Fournier), and the scaphoid scapula and the blood-vessels (Graves) applies to all the organs and tissues of the body. The blighted individual is necessarily a tender individual. On account of an abnormal cardio-vascular system, he lacks the ability to properly nourish his tissues, and therefore has not the endurance to fatigue nor the resistance to disease of the normal man. He rarely lives beyond 60, but dies early, the victim of some acute infectious disease, notably pneumonia or tuberculosis, or in the middle life of some chronic degenerative disorder of the nervous or vascular system. He passes on to his progeny the vicious heritage and thus becomes the source of the short-lived family.

It is not, then, too much to declare that in the great majority of cases, syphilis is the cause of the short family history.

DISCUSSION

Julius Grinker: My friend, Dr. W. W. Graves, who worked out this scaphoid scapulæ question, has shown his specimens and I heard him discuss this question at the St. Louis meeting of the A. M. A. The subject itself is extremely fascinating. If one could make a positive diagnosis of hereditary syphilis by merely feeling the scapulæ, what more could be required?

Dr. Graves has spent considerable time on this subject; he has studied many syphilitic families, among several members of which he has discovered the abnormal scapulæ, and he is naturally very enthusiastic on this theme. He asked the members that attended the St. Louis meeting of the American Medical Association to investigate this matter of the scaphoid scapulæ and I am not aware that Dr. Graves had stated that the intimate relationship between scaphoid scapula and inherited syphilis had already been proven.

I think Dr. Baum is correct when he says that scapular anomalies may belong to the manifestations of malnutrition. I have looked for the scaphoid scapulæ everywhere and was surprised to find them in patients who are *certainly not* syphilitic (unless we base our deductions on the supposition that *all* people are more or less syphilitic, which is not true). In my opinion it is a valuable symptom, *in connection with others*, but too much dependence upon it alone should not be placed.

I believe the essayist has given a splendid exposé of what is known on the subject of inherited syphilis and has added the scaphoid scapulæ as a symptom, which is still something we must know more about. However, I think the address is very valuable, because if hitherto we have not been looking for this symptom, we will surely begin to do so now and appraise it at its proper worth.

To Dr. Graves belongs the credit for this arduous investigation, which made us acquainted with a hitherto unknown symptom, whatever its value may ultimately prove to be.

Dr. Geo. F. Suker: This question of scaphoid scapula is certainly an interesting one and I have had it under observation for a long time, at least five or six years.

I am particularly interested in the question of syphilis and mal-nutrition and have found this in accordance with Dr. Graves and Dr. Ravold that the convexity of the scapula may (in general terms) be said to be due to the fact that this bone is not properly filled out from its centers of ossification of the spinal border. Whether this concavity is due to rachitis or other diseases of malnutrition I am not prepared to say. The border may simulate a straight line but they are far from being straight in many of these malnutritioned children or heredo-syphilitics. I have found the concave border of the scapula in children who were tubercular and rachitic but the marked concavity I have never seen except when they had inherited syphilis.

This scaphoid scapula may not be anything new; still it is a little point which is frequently necessary to observe in order to make a positive diagnosis of inherited syphilis when other stigmata seem suspicious. So far as the teeth are concerned you would not say that every child with Hutchinson's teeth has inherited syphilis. Nor would you say that every one with a seeming interstitial keratitis has syphilis, but when you get these symptoms and in addition have the scaphoid scapula you are almost sure of having syphilis in the family either directly or indirectly, even should the Wassermann be negative.

As to whether the scaphoid scapula is a positive diagnostic sign or not is an open question and has been so for a long time. I have observed some hundreds of these scapulæ in my own clinic and called attention to them off and on, but did not think much about it one way or the other, simply because I did not look upon it as anything new. It takes multitudes of these observations to make a position or dogmatic statement and I think it behooves us to examine the scapulæ whenever we have any suggestion that there might be syphilis.

I am glad Dr. Ravold presented the question and I am sure Dr. Grinker will have to be more conservative in his condemnation of the point and pay more attention to it; not that it is positive, but two and two make four and we sometimes need every possible point to enable us to make a diagnosis.

It is true that the first children born of syphilitic parents show a greater and a more frequent concave scapula border than the subsequent ones. So also is the intensity of this cavity dependent on whether one or both parents are recently or remotely syphilitic. You will find that in children born of tubercular parents or developing rachitis, their scapulæ are not as convex as yours and mine (taking for granted that yours and mine are normal).

There is nothing quite so interesting and perplexing at times as syphilis and every additional diagnostic aid we can have that is not as expensive as the Wassermann is of exceeding value. I, for one, should not want to miss an opportunity of examining the scapula in aiding me in making a diagnosis of inherited syphilis. Perhaps I am not as enthusiastic as some others, but it is merely because, up until this time, I have not considered this as anything particularly new or in any way as a positive pathognomonic sign but only as a strong contributory factor in the array of symptoms proving or disproving inherited syphilis.

Dr. K. A. Zurawski: I should like to add my experience. I am of the opinion that scaphoid scapula should be looked after in all suspected cases. I have two cases under observation right now where there is undoubtedly inherited syphilis. They have all the stigmata, the history is complete, the Wassermann has repeatedly been positive but they have no scaphoid. One is particularly interesting in the face of Dr. Ravold's statement in regard to the priority of birth. She is a young woman, aged 23 years, of splendid physique and development, coming from a recognized and self-confessed syphilitic father. She has an elder sister, who, up to the present time has been, so far as I know, perfectly well and has a well child. Her brother next older than herself died from syphilis in an insane asylum. She was absolutely well until her 22d year when she married. She married a well man. I have examined him. After a year and a half of married life she

developed interstitial keratitis. Coming to me I made an examination and found the Wassermann positive and I found arteriosclerosis. Her brother next younger than she has suffered from some skin eruption all his life. He was born with some patches and has always had them more or less. I have not examined him and so I do not know that he is syphilitic. She has not the slightest deviation of the scapulæ.

The other one is a boy aged 12 years. He has the complete Hutchinson triad yet his scapulæ are perfectly normal. That is as far as my experience with the scaphoid scapulæ goes.

I am much surprised that Dr. Grinker attacked Dr. Ravold so positively as to the relative mortality of syphilis. I am rather inclined to think that Dr. Ravold is right, otherwise how would we explain facts as we know them to exist. In the 16th century syphilis entirely wiped out whole towns. Although we have an enormous mortality still we never hear of whole towns being wiped out. We know that the germ, if it is propagated right along does increase in virulence yet at the same time increases immunity to it and I think it is to this immunity that we owe the fact that it does not, at the present time, create more havoc, at least that it does not have the epidemic character of the first centuries after its introduction.

Dr. Ravold (closing discussion): When invited by your society to make an address upon hereditary syphilis, I was of the opinion that it would not be of general interest and so informed your committee; but the discussion has convinced me that I was mistaken.

In reply to Dr. Grinker's statement, that there are conditions existing in parents other than syphilis which may produce scaphoid scapulæ, it is in accord with the teachings of Dr. Graves, and I will read again from my paper the quotation which he apparently did not hear. "Scaphoid scapulæ is an anomaly in development originating in the progeny from some abnormal circumstance operating in the parents; is therefore transmitted from parent to child, and so on through several generations." Dr. Graves has found that the "abnormal circumstance" in a great majority of cases is syphilis, but does not assert that scaphoid scapulæ are pathognomonic of hereditary syphilis, nor that all heredo-syphilitics have scaphoid scapulæ. A patient presenting scaphoid scapulæ is not declared a syphilitic until a most searching and exhaustive examination is made not only of him, but of all members of his family. It is not the individual of a family alone, but the individuals of a family that are studied, as I tried to demonstrate in the photographs of families thrown upon the screen. The scaphoid scapulæ and the concomitant conditions, the syndrome described by Dr. Graves in his two papers, and which I enumerated in explaining the lantern slide cases, must be found in the individual before the diagnosis of syphilis can be formulated. The cardio-vascular system in particular is so severely injured in hereditary syphilis that it must be carefully interrogated and for this purpose I am acquainted with no instrument which compares favorably with the Luedde-Czapski corneal microscope. With sphygmographic and sphygmometric instruments, the tension within the artery and irregularities in rhythm can be ascertained, but they tell nothing of the conditions of the walls of the vessels. With the Luedde-Czapski microscope, however, not only the conditions within the vessels, tension and rhythm, can be noted, but the structure of the walls of the artery can be distinctly seen and studied as we never before have been able to do. It was my intention to bring Dr. Luedde with me so that he could demonstrate his modified Czapski microscope, but unfortunately his wife was taken suddenly sick and he could not come. However, he informed me that he had exhibited the instrument at the Hull Laboratory recently, and thought that it was as well known in Chicago as in St. Louis.

In regard to syphilization, the slightest acquaintance with the history of syphilis would have convinced any one that syphilization does go hand in hand with civilization. From the first infection of Europeans by the American aborigines in 1492 down to the present time, as set forth in a recent report by Colonel F. J. Lambkin, of the effects of syphilis upon the tribes of the Uganda Protec-

torate, history is full of convincing evidence of the dreadfully disastrous effects of syphilis upon a race virgin to it. I agree most heartily with Dr. Baum that we know very little of the spirocheta pallida, in or out of the body, but from my observations of syphilitics, and their treatment, and my limited study of the spirillum microscopically, I am convinced that there is a resting stage of the organism in the body, which may account for the prolonged latency in many cases, and which makes the cure of the disease so very difficult and uncertain. It is this stage of the spirochete that is putting to route the enthusiastically heralded and flamboyantly advertised new arsenical specific.

That Dr. Graves and myself are enthusiasts, I am delighted to admit. Dr. Graves has a very good reason for rejoicing for he has discovered a thing that we all have seen repeatedly, but overlooked and in trying to make us see clearly, grows enthusiastic. All honor to him for his perspicacity and enthusiasm. His discovery is a constant source of benefit to me in my practice, as an aid in diagnosis; in formulating treatment, and in making a prognosis, and will be to you if you but study it.

From my paper and from the wide range of the discussion, I think it must have become evident to all of us, that a child should exercise great circumspection in the choice of its parents.

THE RELATION OF VASECTOMY TO EUGENICS*[1]

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The Bible teaches that mankind should increase and multiply and replenish the earth. There are people who, interpreting the Bible literally, arrive at absurd conclusions regarding its meaning and would argue that such an injunction as this means that all families should raise the largest possible number of children and that to do otherwise is to violate a divine command. One of our most distinguished citizens, one whose utterances are listened to most attentively throughout the land, loses no opportunity to urge the people of the United States to propagate to their greatest limits and that without qualification whether their progeny be good or bad, stigmatizing any other conduct as race-suicide. In this connection it may be remarked at the time of the Biblical injunction referred to, the entire population of the earth consisted of only eight persons, comprising the family of Noah.

We all grant that increase of population is the result of a natural law, but the most casual investigation of the subject demonstrates too clearly that neither human life nor any other form of life can multiply indefinitely upon this earth. "The cholera bacillus can duplicate every twenty minutes and thus in one day might become 5,000,000,000,000,000,000,000, with the weight, according to Cohn, of about 7,366 tons. In a few days at this rate there would be a mass of bacteria as big as the moon, huge enough to fill the whole ocean." The fecundity of birds and fishes has often been calculated and it has been shown that their natural rate of increase in a few years would result in the production of a bulk

* Read before the Chicago Medical Society, Jan. 11, 1911.

1. Vasectomy is the sterilization of men by double excision of a portion of the vas deferens. Eugenics is the philosophy of race-culture.

so vast that to appreciate it we should be obliged to take as a unit for its measurement the mass of the whole earth. Dr. Franklin showed that both vegetable and animal life is limited only by food supply and space in which to increase. Man furnishes no exception to the natural laws of increase. He has the lowest birth rate proportionate to his weight, the longest period of gestation, he clings longest to the maternal breast and he possesses the lowest death rate, both infantile and general. Obeying the natural laws of reproduction, the human race in all the ages has tended to increase in numbers so rapidly that the food supply falls short of its necessities.

The Greek philosophers clearly recognized the action of natural laws in this relation and formulated plans to meet the exigencies of their own case. Plato[2] proposed to place definite limitations upon the population as regarded the free citizens who were not to exceed a certain fixed number. In each family one son was to inherit his father's land, the daughters were to be married off and the younger sons were to be distributed among families having no children of their own. The absolute number of children was to be limited, an excess being disposed of by law, while a deficiency was to be made up by various encouragements offered on the part of the state to induce additional reproduction.

In this wise numerical strength of population was always to be maintained but not exceeded. In Plato's republic it was proposed that the superior young men should marry superior young women while the inferior men should marry inferior women. The offspring of the former class was to be brought up, not by the parents, but by the state. The offspring of the latter class was not to be suffered to live at all, but were summarily to be disposed of. Likewise the inferior progeny of the better class was not to be raised. Furthermore the law was to prescribe the respective ages at which men and women might marry and how long they were to be permitted to produce children for the state. The period during which procreation was permissible having passed, no living children were to be brought into the world. Should such children, however, be born, they were to be exposed in the same manner as if the parents were unable to support them.

Aristotle[3] entertained similar views. He prescribed the age of marriage and the number of children allowed to each family. If any woman became pregnant after producing the required number of children, abortion was to be procured.

In this connection it may be noted that on October 4, 1910, Dr. Rose D. Howe was reported to have lectured before the Austin Woman's Club on the limitation of population.[4] She was said to have predicted that it will be a statutory crime for any woman to give birth to more than two children when the general death rate shall have been reduced to a minimum. It would appear that her desideratum is similar to that of

2. Plato: Op. de legibus.
3. Aristotelis: Op. de Rupub.
4. The Chicago Tribune, Oct. 5, 1910.

the Greek philosophers, though she is less candid than they were in prescribing the means to the end.

After the time of Aristotle, history records little of note in relation to the problems of population and food supply until in the year 1798 Malthus arrested the attention of the world with his masterful essay on the "Principle of Population."[5] This essay is such a remarkable contribution to knowledge that it would seem permissible to give in this place a short history of its production and influence; for although it still constitutes the most notable work on the subject considered and although it awakened the mental activity of some of our greatest modern philosophers, its writer, nevertheless, has been one of the most misunderstood and misquoted of all authors.

Malthus was born in 1766 and was educated at Cambridge where he obtained a fellowship in 1797, in which year also he was ordained as a clergyman. In 1805 he became professor of history and political ecomony in the East India Company's College, which position he retained until his death in 1834. In discussing with his father the subject of the perfectability of human society, as set forth by various French writers, the latter was so profoundly impressed by the originality and force of his son's opinions that he urged their publication. The first edition of the essay appeared in 1798, after which it underwent great enlargements through successive editions until 1825. The published work was not long in arousing hosts of hostile critics and detractors whose assaults were amply sustained by Malthus in the later editions of his work. But even at the present day there are not lacking those who refuse to accept his doctrines as established facts although to the logical mind they appear not otherwise than the crystallized wisdom of the ages.

Malthus' principle of population is so fundamental in its character, so far reaching in its relation to the problems of social and political economy and so obtruding upon the intelligence of the candid mind that it cannot here be out of place to outline its premises and deductions. The dominant idea is the improvement of society by an inquiry concerning a single impediment in the pathway of man's progress toward happiness, and that is a tendency little noticed although shown by history to have been always present, for life in general and for human life in particular to multiply more rapidly than the means by which it is sustainable. There is only one definite limit to such increase and that is necessity—actual starvation. In the case of man, however, reason enters as a factor and his increase may be checked by preventive measures (which unfortunately may lead to vice), or a constant check will be placed upon him by reason of increasing scarcity of food. Population when unchecked by unfavorable conditions tends to double itself every 25 years, thus increasing in a geometrical ratio. The food supply, on the other hand, under the most approved methods of cultivation cannot possibly be made to increase in like proportion. In a selected area it

5. Malthus, Rev. T. A.: An Essay on the Principle of Population or a View of its Past and Present Effect on Human Happiness.

might even be doubled during the first period of twenty-five years; but it is not supposable that it could be quadrupled in the second period. A most liberal estimation is that it might be increased in each twenty-five year period by a quantity equal to what is now yielded. Throughout the world in general, such a rate of increase would exceed our imagination. In the selected area, then, we may presume that we might expect nothing more favorable than an increase in an arithmetical ratio. To illustrate, these ratios would be as follows: 1-2-4-8-16-32-64-128-256, as compared with 1-2-3-4-5-6-7-8-9. Such a disproportion would, of course, be an impossible proposition and a more just proportion is, in fact, maintained by the action of various checks to the population. The checks may be considered as preventive, or positive; the former consisting of moral self-restraint and vice. The latter are more various and comprise everything that contributes to shorten life; as, unwholesome occupations, severe labor, exposure, poverty, bad nursing of children, city life, excesses, the whole train of common diseases and epidemics, wars, plague, and famine. The checks of all descriptions are classifiable under the heads of moral restraint, vice and misery. These propositions are supported by an historical review of the customs, habits and laws of the various countries of the world. This reveals a series of pictures exhibiting human misery in all its degrading forms, but there is nothing speculative about it. It merely is a presentation of facts. The only speculative feature of the entire essay is the mathematical ratio by which an exact representation of the facts in the case is attempted, but this is by no means to be regarded as an essential feature of the principle itself.

As a remedy for the overpopulation of the various countries, Malthus recommended emigration, which at this time, with its slow and expensive means of communication, as well as its inherent hardships, was only in its infancy, and, as he justly remarked, is a palliative measure at best. The reformation of the poor laws of England by legislative enactments shortly before the death of Malthus, is regarded as one of the greatest triumphs of his work. He maintained that the poor possessed no inherent right to demand support from the government and that when laws were enacted to set apart fixed supplies for the relief of the poor they operated in such a way as to increase pauperism, in that they tended to foster idleness and imprudent marriages. The aim of the reformed poor law was to emphasize the duty of self-support and the responsibility of parentage.

A satisfactory elucidation of many of the problems of social and political economy becomes impossible without due respect being paid to the great fundamental principle established by Malthus. An example of this is seen, as stated by one writer,[6] in the case of India. Here we witness a country with a population which has been redundant for ages and which has suffered from all the concomitant evils of war, plague and famine. Under the beneficent rule of Great Britain many of its

6. Kirkup, Thomas: Encyclopedia Britannica.

grossest evils have been removed, some of the greatest enemies of human life and happiness have been banished from the land, the span of human life has been broadened, but there has been no proportionate increase in the quantity of food produced, in search of which we now find large numbers of Hindoos in the western hemisphere and latterly upon our own western coast.

It is interesting to observe the influence produced upon Darwin by the writings of Malthus. He acknowledged his indebtedness in the following words: "On reading Malthus on population, I saw that natural selection was the inevitable result of the rapid increase of all organic beings." Whatever may be thought of the validity of Malthus' doctrine, no reasonable man can find fault with the advice which he gave for relief from the evils of a congested population; his precepts were, to increase the sources of food supply; to relieve a crowding population by emigration; and to exercise moral self-restraint, his words in this regard being: "do not marry until you have a fair prospect of supporting a family."

Darwin changed, as we may say, the whole current of modern philosophical thought by his enunciation, in 1858, of the principle of natural selection, which he formulated in these words: "This principle of favorable individual differences and varieties and the destruction of those which are injurious, I have called natural selection or the survival of the fittest."

Darwin's idea was soon seized upon by another philosopher, a friend and cousin to Darwin, Sir Francis Galton, who, in 1865, published his views on "Hereditary Genius," in which he clearly established the fact that ability is an hereditary trait, something which was quite opposed to the prevailing doctrines of that period. Proceeding from this standpoint and being encouraged by the views of Darwin concerning the origin of species to pursue inquiries suggested by the topic of heredity, Galton has spent nearly fifty years of his life in studies devoted to the uplifting of the human race and has become the recognized leader in the so-called school of eugenics. The aim of eugenics is the improvement of the human race and the promotion of happiness by the extension of Nature's law of selection. The term "Eugenics" was first used by Galton in his work on "Human Faculty" published in 1884 and at his suggestion and with funds supplied by him, the University of London established the "eugenics laboratory," in connection with Prof. Karl Pearson's biometric laboratory. There are various other organizations concerned with the subject of Eugenics, among them the "Sociological Society" of London, and the "Eugenics Education Society," which numbers among its members many of the brightest men and women in England. This society publishes a most excellent journal called "The Eugenics Review." An international society for improving the health of the race has recently been formed in Munich, with Sir Francis Galton as Honorary President. This society seeks to promote the study of scientific biology, racial and social, and of racial and social hygiene by collecting and recording such facts, pathologic and normal, bodily

and mental, as illustrate the workings of the laws of heredity and variation in the case of man, by spreading the knowledge of these facts and the lessons to be derived from them amongst its members and the population at large. It also seeks to stimulate its members to carry out in practice the following principles: to impart their own spiritual, intellectual and bodily efficiency; to agree that before entering on marriage they will submit to medical examination as to fitness for marriage, or at all events for parenthood; to promote by every means in their power the individual and racial efficiency of their offspring.

We have a eugenics organization in this country. It is the "Eugenics Section" of the "American Breeders' Association." The chairman is Dr. David Starr Jordan, of the Leland Stanford University and the secretary is Dr. C. B. Davenport, of Cold Spring Harbor, Long Island, where the eugenics' record office is located. There are five standing committees, each of which deals with a single phase of heredity. The chairman of the committee on "Heredity of Criminality," is Prof. C. R. Henderson, of the University of Chicago. The Eugenics Section is in correspondence with various sub-committees and field workers throughout the country, and seeks to accumulate and study the records of physical and mental characteristics of human families, and to educate the public as to classes of fit and unfit marriages. The American Breeders' Association has published five annual reports, which are said to contain the most valuable body of knowledge extant in any publication on the history of heredity in plants, animals, and man, and on the work of creating improved varieties of plants and improved breeds of animals. The Association publishes a quarterly called "The American Breeders' Magazine."

There is one problem in eugenics which offers much difficulty in its solution, viz., a law of biologic multiplication, to which attention first was called by Herbert Spencer. It appears that the higher the form of life, the less is its power of multiplying. This applies to man as compared with the lower forms of life and likewise to the evolution of the human race *per se*. The point is illustrated by a statement emanating from the census bureau in Washington, which is as follows: "In all parts of the civilized world both the birth-rates and death-rates tend to decrease, and as a rule those countries having the lowest death-rates have also the lowest birth-rates." These statements, however, are not incompatible with a steady increase of population, so long as the birth-rates surpass the death-rates. But should the relative rates gradually become approximated, it is supposable that the human race might finally accommodate itself to the means of subsistence; but unfortunately the very types whose parenthood is the most desirable, become the least fertile, thus hindering the progress of race culture. The eugenists attempt to meet this difficulty by advising us, as Saleeby[7] says, "to throw all the weight we can upon the side of progress, increasing to our utmost the survival value and the effective fertility of the higher types."

7. Saleeby, C. W., M.D., Ch. B.: Parenthood and Race Culture, 1909

The term "Eugenics" is defined by the University of London as "the study of agencies under social control that may improve or impair the racial qualities of future generations, either physically or mentally." In reviewing the work of an unusually fruitful life, Sir Francis Galton,[8] at the age of 86 years, in his recently published autobiography, states that he takes eugenics very seriously and finds that its principles ought to become one of the dominant motives in a civilized nation, much as if it were one of its religious tenets. He regards the world as a stage in which evolution has progressed principally by means of natural selection. But man, being gifted with pity, has also the power of preventing many kinds of suffering. He should therefore replace natural selection by other processes that are more merciful and not less effective.

The first object of eugenics is to check the birth-rate of the unfit. The second is the improvement of the race by furthering the productivity of the fit by early marriage and healthful rearing of children. Natural selection means excessive production and wholesale destruction; eugenics, the reproduction of the best of the human race and only in such number as can properly be cared for.

To produce rapid results the horticulturist goes further than Nature. He grows tens of thousands of plants and selects a very few for propagation, destroying the unfit, but this of course forms no part of the system of eugenics. It is proposed, however, to limit the multiplication of those who are seriously afflicted by lunacy, feeble-mindedness, habitual criminality and pauperism. To this end laws have been enacted in various states of our union to prevent the procreation of criminals, idiots, and imbeciles, and in this good work the State of Indiana took the lead, in March 1907, by enacting a certain law.

In the preamble of this law it is stated that heredity plays a most important part in the transmission of crime and mental defectiveness, for which reason authority is delegated to surgeons, appointed for this purpose, to perform such operations for the prevention of procreation as shall be deemed safest and most effective. The credit for the enactment of this law is ascribed to W. H. Whitaker, former superintendent of the State Reformatory at Jeffersonville, and Dr. H. C. Sharp, its institutional surgeon. When the law went into effect there were about 1,200 inmates of the institution, of which number 293 were operated upon by vasectomy. During the first year of the operation of the law there were 426 new admissions to the prison of which 119 were subjected to the operation. It is also to be observed that Dr. Sharp initiated the application of vasectomy in 1899 long before the period of the legal enactment, the consent of each individual to the operation having been obtained.

The subsequent history of these operations has been observed, in many instances, over a period of 11 years and in all cases good results only have been evinced. It has been suggested that we repeal the law forbidding the marriage of defectives and after sterilizing them permit

8. Galton, Francis: Memories of My Life, 1908.

their marriage. There are many defective women in the state institutions of Indiana who are said to be perfectly capable of self-support. At present they are a burden upon the state and it has been proposed to sterilize them and then release them; for if they were released without having been sterilized, there is every reason to believe that they still further would burden the state by reproducing their kind.

In the operation of vasectomy the spermatic cord is readily located by touch, a small incision is made, the vas deferens is separated from the accompanying vessels and nerves and then divided. The distal end is then ligated and the incision closed. Little inconvenience is experienced on the part of the patient, whose usual activities are barely interfered with after the operation, which is readily performed under local anesthesia or without anesthesia, and requires only a few minutes for its completion. The individual is at once and forever sterilized. He is not asexualized or emasculated. His sexual organs functionate as before, with the sole exception that the vital part of the spermatic fluid is not discharged from his body. It is maintained by some observers that resorption of the spermatic fluid into the body produces a most beneficial tonic effect upon certain individuals, as those who have been debilitated by masturbation or weakened by neurasthenia.

Dr. H. C. Sharp[9] (above referred to) calls attention to the fact that many states have passed laws to prevent the marriage of defectives, but that such laws are powerless to effect their true purpose. Segregation, he says, is effective but imposes an unnecessary burden upon the state; while castration is too grave an operation and is productive in itself of mental disturbance, although he approves of it as a punishment in certain cases; castration also abolishes the secretion of a product which is essential to the well being of the body. Dr. Sharp has been performing vasectomy, as stated, since 1899. He reports about 500 cases, none of which has been followed by unfavorable symptoms. Marked relief has been obtained in many individuals who suffered from the effects of masturbation and from mental depression. The operation, he informs us, is recommended by all upon whom it has been performed. In the Jeffersonville reformatory, vasectomy has been performed upon 176 men at their own request to obtain relief from masturbation. Dr. Sharp believes that the law should attach criminal indictment to any one submitting to the operation or performing it without due process of law. Right here it may be remarked that a similar law, passed by the State of Connecticut, August 12, 1909, provides penalties for just such acts. California has a similar law. The States of Pennsylvania and Oregon are said to have passed sterilization laws, but they have not yet been made effective by their respective governors. In Virginia a law based upon that of Indiana is now pending.

Dr. R. R. Rentoul[10] of Liverpool, has been very earnest in his efforts to introduce reforms on similar lines in England, but so far with little

9. Sharp, H. C., M.D.: Vasectomy; A Means of Preventing Defective Procreation. JOUR. A. M. A., Dec. 4, 1909.
10. Rentoul, R. R., M.D.: Proposed Sterilization of Certain Mental and Physical Degenerates. Race Culture and Race Suicide, 1906.

success. He claims to have been the first, in 1903, to recommend vasectomy as a means of checking increase in the number of the insane and in preventing innocent offspring from being cursed by some parental blemish. After enumerating the appalling statistics of criminality and degeneracy in the United Kingdom and showing that 13,081,019 pounds sterling were expended in 1902 upon the mental degenerates and the physically unfit, he recommends: (a) voluntary sterilization, which is to be practiced upon women with deformed pelves, cancer and fibroids; upon sane men and women with incurable diseases of lungs or other chief organs; upon sane people with a history of family insanity and married women who become insane when pregnant or while suckling their children; (b) compulsory sterilization, to be practiced upon idiots, imbeciles, the feeble minded, epileptics, lunatics, deaf mutes, defective and backward children, habitual inebriates, habitual vagrants, public prostitutes and markedly neurotic persons.

In this connection attention well may be called to some statistics regarding our own national conditions. Thus we have it upon the late Dr. Lombroso's authority that in the United States while the general population doubled in a little more than 30 years, the insane population increased six fold.

If there be any reformers, however, who believe that Dr. Rentoul is not quite radical enough in his plans for the amelioration of social and economic conditions in England, there still remains to be considered the advice of W. Duncan McKim, M.D., Ph.D.,[11] which is set forth as follows: "The roll of those whom our plan would eliminate consists of the following classes of individuals coming under the absolute control of the state: idiots, imbeciles, epileptics, habitual drunkards and insane criminals; the larger number of murderers; nocturnal house breakers; such criminals whatever their offence as might appear very dangerous, and finally criminals who might be adjudged incorrigible. Each individual of these classes would undergo thorough examination and only by due process of law would his life be taken from him. The painless extinction of these lives would present no practical difficulty—in carbonic acid gas we have an agent which would instantly fulfill the need."

In the presentation of the aims of the eugenists in general and the vasectomists in particular, it has been the writer's endeavor to observe the ordinary methods of logic. By the inductive methods of scientific investigation, Darwin and Galton discovered important principles affecting all forms of life from the lowest up to man himself. By deductive reasoning, the eugenists are endeavoring to apply these principles to the end that human prosperity may be increased. It still remains to illustrate by statement of facts, the agencies that are concerned in a great struggle now going on whose end is the survival of the fittest among nations—a struggle so gigantic that the interests of the individual are quite lost sight of.

11. McKim, W. Duncan, M.D., Ph.D.: Heredity and Human Progress.

In spite of our modern methods of philanthropy, in spite of our more general diffusion of knowledge, and in spite of more rapid international communication, it still remains impossible to harmonize international interests. At the bottom of all the difficulty lies the failure of food to keep pace with the population. This is the chief cause of political unrest everywhere. Consider the case of England. The United Kingdom produces only one-eight of the wheat which it consumes. The amount of food of all kinds kept on hand would suffice to supply the population for a period of three weeks only. In the present piping times of peace it is said on excellent authority,[12] that 30 per cent. of the population are living on the verge of starvation. Saleeby states: "We are for the first time beginning to feel the effect of a great national problem—the race between population and food supply." "The question is how will the population be kept down? By the bloody processes of Nature, or by the provident and human methods of man?"

Sir William Crookes stated twelve years ago that "the actual and potential wheat producing capacity in the United States is, and will be for years to come, the dominant factor in the world's bread supply." He also expressed the opinion that a permanently higher price of wheat was a calamity that soon would have to be faced. He also declared that the augmentation of the world's eating population in a geometrical ratio is a proved fact; that within a generation the United States will require all the wheat grown within its borders; that Caucasian civilization is founded upon bread; that we must learn how to fix the nitrogen of the air, how to combine it in forms upon which the plant can feed and that unless the fixation of nitrogen can be classed among the certainties to come, the great Caucasian race will cease to be foremost in the world and will be squeezed out of existence by races to whom wheat and bread are not the staff of life.

Three methods have been devised for the fixation of atmospheric nitrogen. The first is that of Crookes, whereby atmospheric air is subjected to high temperature by means of electric arc discharges. It involves the use of very cheap electricity and is in use in Norway. In the second method, nitrogen is separated from the oxygen of the air by distilling liquid air. In the third method, ammonia is produced by chemical combination of nitrogen and hydrogen, a plan requiring a very high degree of pressure. Relevant to this subject attention may be called to the work being done by our agricultural department in Washington, which sends out to the farmers packages of bacteria to be sown in the ground for the purpose of enabling the plant to obtain its nitrogen from the air.

Another agricultural expedient is now being employed whereby, it is said, worn out farms may be brought into a high state of productivity by enriching the soil with phosphatic rock, the presence of which enables the plant better to avail itself of the potassium salts present in the soil. Phosphorus is one of the three essentials to the growth of

12. Rowntree, Mr. Seebohm, and Booth, Rt. Hon. Charles: Quoted by Saleeby in "Parenthood and Race Culture."

plants. The supply of phosphorus, while absolutely limited, is relatively great in this country. Approximately one-half of the annual output of our phosphorus is now being exported. Whenever phosphates are discovered on public lands, these lands are withdrawn from entry by the government, which is also contemplating a positive prohibition of exportation of phosphates from public lands as a necessary measure for the conservation of one of our most valuable natural resources. The value of phosphates to the grower of grains has been shown in experiments made by the State of Ohio, which demonstrated a financial return to the farmer equal to 376 per cent. on his investment in phosphates for his crops.

Interesting educational work is being done by various railway companies, which are sending out demonstrating trains called "Corn Specials," "Better Farming Specials," "Dairy Specials," etc., whereby improved methods of agriculture are being taught right in the heart of the agricultural districts.

An English political economist,[13] writing thirty years ago, stated that "for a series of years the national expenditure for food has gone on increasing simultaneously with diminishing receipts from the sale of manufacturers." "Since 1872 each year has been worse in this respect than its predecessor." "Every succeeding year the home necessity affords a less amount of food per head of its population, and every year the money value of our exports is also less per head." This writer begins his treatise by hooting at the timid Malthus, who feared that England would become overpopulated. He then figures on the numbers lost to the population by emigration. Calculating that each emigrant was possessed of an economic value to the state of 259 pounds, he reaches the conclusion that England has made a present to the world, but particularly to the United States, of a sum of money amounting to $7,000,000,000. To the man in the street (as Sir Francis Galton would say), this would seem to be a gift which England could ill afford to part with. The same writer referred to, tells us that still further emigration from England is most highly desirable and that presently the most important man in the British Ministry and the greatest benefactor of his race, will be the one who best knows how to deal with the problem of emigration. He also informs us that "France, of all European nations, is the one of most increasing prosperity. With half the population of Russia she has double her trade; but exceeding the population of England, has only half of the latter's trade. She imports more than she exports, but manifests steady growth in wealth and power." And yet our British economist winds up this part of his statements by affirming that "security of happiness lies in the fulfilling of the terms of the charter whereby we hold possession of the earth: 'Be fruitful and multiply and replenish the earth.'"

At the present time, it is only fair to state, trade conditions in Great Britain are much more satisfactory than they were a few years

13. Bourne, Stephen: Trade, Population and Food, 1880.

ago, the past year indeed, having been one of unusual prosperity. On the other hand it should be remarked that Asia is awakening to industrial life. Japan, India and China are all becoming producers instead of being merely the consumers of the products of Great Britain and the United States. In estimating the power they are destined to wield in the world's trade, it must not be overlooked that they possess advantages of the utmost importance; on the one hand they are able to manufacture cheaply because they produce much of their raw materials, because they use the newest and most approved machinery, and because their markets are near at hand, which means a great saving in the items of freightage and insurance.

An interesting eugenic publication is that of Montague Crackanthorpe[14] which was published two years ago. Referring to a speech by Lord Avebury, in 1906, he informs us that ten years prior to that time England's naval and military expenditures were 35,600,000 pounds. In 1905 they had risen to more than 66,270,000 pounds. During a similar period, the naval and military expenditures of Italy had increased by 1,500,000 pounds; those of France by 6,000,000 pounds; those of Germany by 8,700,000 pounds. The increase in England was over 30,000,000 pounds.

In the United States we have a population of about 92,000,000 as compared with 350,000,000 in Europe. The expenditure of Europe on armament is over 250,000,000 pounds; that of the United States, 40,000,000 pounds, while the number of men under arms is as 4,000,000 to 100,000. "It is obvious, therefore," said Lord Avebury, "that our European manufacturers are heavily handicapped as against those of the United States and unless something is done, will be so more and more."

In answer to recent inquiries in England regarding the enormous increase in the cost of government, Chancellor Lloyd-George, at the Lord Mayor's dinner last July, made the following statement: "The increase of expenditures not only in England, but in every land under the sun, is due to what Lord Charles Beresford called the insane competition in the armaments between the various countries of the world. They are now spending annually $2,250,000,000 upon this machinery of destruction. All of the nations seem to be infected with an epidemic of prodigality in this respect which seems to be sweeping over the world and sweeping to destruction. It is impossible to stop this wild expenditure on armament until the people of the world reach an amicable understanding."

In Germany the economic conditions are equally perplexing. "Why is it," says one authority, "that we find peace and prosperity in France, where during the last 50 years the population has increased by four millions only; while in Germany, where the population during the same period has increased by twenty-six millions, there is a constant state of unrest?" The reason appears to be that France does not require an

14. Crackanthorpe, Montague: Population and Progress.

outlet for an excessive population, while Germany is compelled to seek such an outlet and only by colonization can she find it. Unfortunately for Germany, she possesses no such extensive and fertile colonies as does Great Britain and for that very reason is apt to come into collision with the latter power. Germany is rapidly building up a modern navy at enormous expense. She is building ships of the dreadnought type as rapidly as Great Britain and has provided deep water harbor facilities for them at Heligoland Island. At the present time the island of Borkum is being fortified to increase still further the strength of Germany in the North Sea. An English writer recently has described Germany as "immured in a geographical prison, the walls of which are spiked by the powers of the Dual Alliance, from which she must either burst or acknowledge defeat." Overtures have been made to Germany by Great Britain on various occasions with a view to limiting the extent of their respective military and naval armaments, but to no avail. The *London Mail* has recently made the following editorial statement: "Germany has, of course, a perfect right to develop her naval resources in whatever manner and to whatever extent she chooses. But her devouring activity in the North Sea and her relentless rivalry for naval supremacy can not leave us indifferent to the danger that steadily advances toward our shores. There can be only one answer to the challenge. We must build and build again until this new and immeasurable advantage which Germany is wresting from the sea is more than balanced by the unquestionable supremacy of our fleet." By the year 1913 it is estimated that Germany and Great Britain will each be provided with sixteen dreadnoughts, the enormous cost of which furnishes some idea of what the people must suffer from taxation. It might be thought that with dreadnoughts costing from $7,000,000 to $10,000,000 each, the limit of naval extravagance had been reached; but our own government has been considering the propriety of building two warships to cost $11,000,000 each, and another to cost $18,000,000, while Japan is now building in England a warship which is to cost $12,500,000. As for dreadnoughts in general, the first one ever built was launched five years ago in England. The world powers have provided in all for eighty-eight such ships, twenty-two of which have been completed.[15]

In our own country economic conditions, of course, are infinitely happier than abroad; but it will surprise a good many easy-going people to learn, as they ought to learn, that already we are beginning to feel the press of population. The limits of corn production have almost been reached so far as acreage is concerned. The production of wheat can be increased largely, but it is believed by good observers, both foreign and native, among them Sir William Crookes in England, and James J. Hill in this country, that the United States will not be able to export wheat for more than 25 or 30 years and that long before this

15. In the naval budget of Japan for 1911-12 she appropriates $43,050,000, as compared with $17,600,000 for 1909-10. Our own naval appropriations for 1910 were $137,000,000 and the estimate for 1911 is $126,000,000.

period has elapsed the existing slovenly methods of agriculture must give way to more rational plans. We are now experiencing the effects of a crowding population in the increase of living expenses and it is high time to make ready for changed conditions in national interests. Always, heretofore, foreign immigration has eagerly been sought; but we well may pause to consider whether it would not have been better for our country to have developed more gradually, in which case we now would neither be deploring the exhaustion of our natural resources, nor inquiring how to Americanize a vast horde of aliens gathered in from every country under the sun.

Montague Crackanthorpe, president of the Eugenics Society of London, has admirably illustrated the problem of population in the following parable:

"A man with a genius for observing the habits of ants was minded to parcel out a small plot in his garden for the purpose of harboring an ant's nest. He built a wall of brick round this plot and started a colony of ants upon it, allowing them ample room for their operations. In course of time the ants began to multiply and to separate off into distinct tribes, not always on good terms with each other. As multiplication proceeded every available inch of space was occupied by the busy insects. After several serious inter-tribal encounters, they at length agreed not to quarrel except when their 'vital interests' were concerned. A question then arose: 'what were vital interests?' and they appealed to the owner of the garden for advice and assistance. His decision caused some surprise and not a little indignation. It was that, if they had become too numerous to find accommodation in the plot assigned to them, their vital interests were certainly affected; but that as their vitality was entirely within their control, he could do nothing for them."

From the above premises it would appear that the following conclusions may fairly be drawn:

1. That Malthus' principle is verified by present conditions of population.

2. That overcrowding of population in various countries is one of the chief causes of political unrest.

3. That there is urgent need of wide-spread effort to promote race culture, which is the antithesis of race suicide.

4. That in the operation called vasectomy we possess one valuable eugenic agency for the uplifting of the human race.

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DISCUSSION.

Dr. G. Frank Lydston:—I am afraid I shall be unable to do Dr. Hoag's paper justice in discussion because so many points have been brought out.

It is true that Dr. Sharp was the first to put into practical application the principles of vasectomy as a prevention of the spread of crime, but it is not true that the credit for the first published work should be given to him, or that Indiana should be credited with having taken the lead in the matter of publicity.

Chicago is entitled to some of it. Ochsner did some work on this subject before the work done by Sharp, and I did some on the general subject of sex mutilations as a remedy for crime. Dr. Ochsner's paper was published in the *Journal of the American Medical Association* in 1899. Dr. Sharp's first paper appeared in the March issue of the *New York Medical Journal*, 1902.

The question of operation on the sexual organs for the prevention of crime is not new. It was first brought before the American public fifty years ago by Dr. Gideon Lincecum of Texas, who introduced a bill into the legislature recommending castration of criminals. Little was said on the subject, however, until the publication of an article by Hunter McGuire and myself, in which I recommended castration as a cure for rape and some other crimes. The subsequent history of the presentation of the idea in various forms presents the names of many of our prominent men.

In 1906 I read before the Illinois State Medical Society a paper on "Vasectomy, with Especial Reference to Crime" (published in the *Journal of the American Medical Association*). Dr. Belfield published a similar paper in 1908. My book on the "Diseases of Society" appeared in 1905. That, so far as I know, is the Chicago literature to date, so you will see a certain amount of credit for this work should be given to Chicago.

I shall not go extensively into the operation in relation to crime, because this happens to be the title of a paper which I am to read before this society very soon. I did not know, at the time I sent in the title of my paper, that Dr. Hoag was to have one on so similar a topic.

I wish to ask two questions:

Dr. Hoag: Did you state that the highest forms of a species were the least propagated?

(Dr. Hoag: I said that it was generally conceded that the higher state of cultivation, the fewer were the progeny.)

Is it your own opinion that the lower forms propagate very rapidly? (Yes.) Very well. That statement is generally made, that the least-fitted types among the human race are the ones which multiply most prolifically, and the higher the civilization the less the offspring. It also goes without saying that the restriction of the offspring is one of the results of civilization. However, what we term the "highest forms" are so merely from the viewpoint of civilization. They are not necessarily the highest forms from a biologic standpoint.

There are some inconsistencies in observations that bear particularly on the results of vasectomy. Henderson recently was quoted as saying that celibacy was a cause of crime. If crime is largely due to celibacy it would have some bearing on this. It is granted that the habitual criminal is largely a celibate. Wandering from place to place, or spending most of his life in prison, he cannot possibly develop whatever domestic tendencies he may have, and we could hardly expect him to settle down and raise a family. But the problem of the propagation of criminals by illegitimate offspring could be, in a large measure, handled by vasectomy.

In regard to the restriction of families: the illogical view has been very widely circulated that the best types of families are the ones which have the largest number of children. Obviously, the keynote of the situation is the improvement of the children which are born, the parents having only that number which can be properly reared and educated.

With relation to the food supply to civilization, Buckle, in his "History of Civilization," calls attention to the fact that when the price of wheat goes up the number of marriages and of children born lessens in proportion. Taking this into consideration, it is very easy to attribute to the present high cost of living the lessening number of marriages and the relatively small birth-rate. This, of course, is but one causal factor.

Darwin might have gone a great deal farther back than Malthus for his reasoning. Every one will agree, I believe, that the very foundation for our ability to improve breeds of stock and species of plants lies in the fact that we are able to govern their selection.

The Hindoos worked out the problem of natural selection in the thirteenth century. In a book called Masnavi, the entire scheme of evolution appears. The author I do not know. The only name given is Jalal ad Din, which in India is merely a title, not a name at all. We would know about as much of the author of one of our books if it was said to have been written by a colonel or a judge. In that book, as I have said, is outlined the entire scheme of evolution.

> "First man appeared in the inorganic state. Then, as you know, he arose from the inorganic state into the vegetable, from which he arose, as you know, until he became wise and knowing as he is now."

Now that, I believe, outlines about as prettily as could be the generally accepted story of the origin of man. Darwin followed others, as you are well aware. Lamarck, Goethe, Wallace, Spencer, and prior to the writings of these latter there were the poems of Lucretius and the works of Darwin's own grandfather, Erasmus Darwin. But Darwin was the one who first practically applied evolution to human life, and that is one of the many reasons why he is always first mentioned in this connection.

I will say a word about the operation of vasectomy. Of course, it is being heralded as a panacea, and like most panaceas, is likely to have some application by social quacks. The operation is usually done by the technic given by Dr. Hoag, but we can restore the vasa deferentia just about as fast as another operator can perform the orthodox operation of vasectomy. It can be done, however, by removing the entire vas, high up, so that restoration is a much more difficult process or even impossible.

With regard to the theories of Malthus: had he been a biologist we could not have been surprised at his deductions or the permanency of his views. Had he known anything of the important questions of biology he would not have gone so deeply into the question of food supply. In 400 years, according to Malthusian figures, there would be a human being for every square foot of soil in the United States. But Malthus did not know that the same biologic laws control the human race that control all other species. The Doctor said something about the multiplication of bacteria. It is true that they do multiply very rapidly, and were it not for the fact that they are destroyed in very large numbers by other bacteria, there would, by lack of food and other vicissitudes of environment, soon be no room for anything but bacteria. The same thing, practically, applies to the human race.

The greatest difficulty in eugenics is that we cannot take a man or a woman and command them to do thus and so for the good of the race in matters involving sentiment, personal preference, expediency, etc. It is beautiful, I will admit, to sit down and work this all out, but when the bandy-legged gentleman wants to marry the cross-eyed lady there is usually no question raised of morals or physical fitness or anything else.

Another great trouble is that "fit" biologic types and "fit" social types do not always harmonize. How are we going to decide which really is the highest type of human being, the highest social type or the highest biologic type?

Our lack of control of environment also has something to do with these matters. There is, of course, adaptation and a certain amount of choosing and modification of environment, but we cannot place each human being in his natural conditions, and when we come to apply eugenics we must remember this point. A great many of the conditions, within the range of social therapeutics, which we wish to control by vasectomy, are due to our artificial environment. The price we pay for what we call the highest type (I deny that it is the "highest type," but I will call it so because we all hope to be included in that type) of civilization has in it a great mixture of selfishness. I believe that there is a good, natural, healthy sort of selfishness; I believe that even altruism itself is merely a sort of concatenated selfishness. We are likely to think that "the greatest good to the greatest number" is being fulfilled if something is being done that we wish to have done.

I remember a story Lincoln told of himself at one time: He was driving along a muddy country road, all dressed up in his high hat, long-tailed coat and gloves, on his way to make a speech. As he drove through a particularly muddy stretch of road he saw a pig mired in the mud and squealing for all it was worth. He considered the matter and the chance of his being able to relieve the distress of the pig and yet not spoil his own cosmetic perfections, and finally came to the conclusion that it was impossible, and that so far as he was concerned, Mr. Pig would have to stay where he was. He drove along some miles further, but he was so disturbed in mind that he finally turned about and drove back to relieve the pig.

Telling the story later, he was complimented on his kindness of heart, and in reply said that the pig was the least consideration; that he turned back to relieve his own feelings. That is about the way we usually relieve others. When our own conscience bothers us so that we can get no rest, we do the things which we should do and then try to persuade ourselves that it was our great kindness of heart that prompted it.

It is just as essential to select the fit for breeding as it is to eliminate the unfit. In considering the propagation of the unfit there comes into play the lack of opportunity among the unfit. We must remember that a very large number of the unfit are segregated in our public institutions. In the aggregate the number so segregated is very large.

A point with reference to the dangers of blood and type contamination: We frequently hear people boasting that they are "blue blood all the way back" . . . that there is nothing in their families of which they are ashamed. I will present a diagram which I frequently use to illustrate the fallacy of this to my classes:

(Here Dr. Lydston made a diagram on the board showing the number of persons involved in the ancestry of an individual, and how absurd it would be for one to assert that there was nothing in any of those lives for which he could not vouch.)

I take it that everyone here will grant that the same biologic laws control all animal life, although the action of the laws may vary in intensity. It is different with us than it is with the savages, and different than it was with our forefathers, but still, in the main, the operation of the laws is the same.

I believe that acquired characteristics of certain types can be transmitted (although some students of heredity deny this). For instance: when an individual becomes an inebriate, or by reason of an accident or brain disease there develops serious nervous disorder, I believe that a disease tendency or developmental characteristic may be transmitted to the offspring. Granting this, is that person as fit as he was before the accident, merely because his ancestry was not tainted or abnormal in type?

Referring back again, if you please, to what may have happened during the family history: I have on my farm a fowl that has only one-sixteenth of a certain blood strain. I can trace his ancestry back for ten years. Since that time there has not been a single bird of that stock that has had any of the characteristics of the original strain. This year I had ten young fowls (the female parent of strain being entirely different from the father) two of which are exact duplicates of the male progenitor of ten generations back.

Here is a point with regard to eugenics that is of value. If we wished to perpetuate a uniform human type we would have to inbreed. In breeding fowls and other animals, if one wishes to perpetuate and perfect a certain type, one must inbreed. Then one must line breed, and I will explain in a moment what I mean by that. This idea of the impropriety (to use no stronger term) of the intermarrying of human cousins is about as stupendous a fallacy as was ever perpetuated. It is true, however, that if you inbreed and there are imperfections, i. e., if the individuals selected are not absolutely fit for propagation; if there is any tendency which you would avoid in the offspring, you will have it in greatly exaggerated form in the progeny of inbred parents.

If you want a perfect type of animal the thing to do is this:

(Here Dr. Lydston illustrated by diagram proper mating, which would be valueless without the illustrations.)

Successful inbreeding is a little more difficult among domestic animals than it is among wild ones, i. e., the results are not as good as when the animals are running wild.

Here is a peculiar thing that occurs. If you take a certain type of oriental fowl that has a short thick "pea" comb and cross it with the American variety having a "saw" comb the progeny is a compromise between the two parent types. You do not have a perfect type of either one. In my experiments of something over ten years I have never seen any of these cross breeds in which the progeny showed the dominant characteristics of either ancestor. If the progeny cross breed are bred "in and in" part of the next generation will be American and part oriental in type, at least physically. Sometimes other traits will be reversed, thus giving an American appearing bird with oriental laying habits, and *vice versa*.

I have some very small toy fowls, very bright red and black in color, which have been bred for about twenty-five years by a friend of mine and for ten years by myself without an out-cross. Some years ago a male bird appeared in the flock which had no male plumage except a blue wing bar. I tried to breed that out and now I have several male birds without any of the characteristics of the male bird and the wing bar itself has disappeared. In brief, I have originated a new type from what was primarily a biologic "sport."

Under favorable circumstances, properly controlled polygamy might perhaps be the logical biologic way to apply the science of eugenics to the human race.

One point I wish to bring out which I have absolutely proved. Take a type that is absolutely perfect, which you have studied and think you know all about. Cross breed and you will develop a lot of things in the way of type variations that you never supposed were in the blood. The more alien the infusion of new blood, however, the less likely this is to be true. Take two perfect types of different blood and on crossing them you will often find that something has been introduced that is not as it should be. You may say the ancestry was not perfect, or you may put it down as the result of some subtle chemistry of the blood, but whatever the explanation, the fact remains that certain crosses, as breeders say, fail to "nick." The parental type is beyond reproach, but the progeny is bad. The application of these points in breeding to the human species needs no special pleading.

Dr. T. J. O'Malley:—I have been deeply interested in the paper read by Dr. Hoag and in its discussion by Dr. Lydston. Now, as ex-chief medical officer of the Northern Illinois State Penitentiary, I think I should say a few words. I desire to testify to the accuracy of the views expressed by both Dr. Lydston and Dr. Hoag. Looking into the records of this institution, as well as of those of New York and London, we will see records of a man whose father and grandfather had been prisoners in the same institution (sometimes for the same sort of offense). Frequently the father and son were imprisoned at the same time.

Once after Dr. Lydston and Dr. Henderson had visited the institution, I asked them what they would suggest to prevent this state of affairs. At once Dr. Lydston replied "vasectomy." I went before the Board of Commissioners and suggested Dr. Lydston's remedial agent. They said it was impossible; that it was decidedly against church principles, and that, in addition, we did not have laws which would enable us to do it.

My view of the matter is this: That the members of the medical profession should get together and, in as short a time as possible, seek the enactment of a law which would make possible this procedure. It would be an inestimable benefit to mankind.

Dr. K. A. Zurawski:—I have learned quite a little from this paper, and am only sorry that Dr. Hoag tacked onto his scientific paper his views of the cause of our political unrest. And why drag in Malthus theories? The trouble with

Malthus is that he was not a scientific man. He was merely a traveler and a close observer. He was an Englishman. The English, as you know, usually stay at home, but when once they begin to travel and happen to be (as Malthus was) possessed of keen observation and of the ability to say things in a sharp, pointed way, they carry a certain amount of convinction at home, but his books were written at a time when various phases of political economy were not understood, and when political economy itself was in its infancy for lack of data.

Malthus forgot, in his theory, that he was figuring on England alone, when he said that there would come a time in the existence of mankind when we would come to a brick wall in the matter of food supply. He forgot that there were other countries that could supply food for the entire universe and to spare.

Besides, it may not be uninteresting to mention that Malthus himself did not really work out this theory. It belongs to David Hume, who promulgated it some ten years before; so I think we can easily let old Malthus rest in peace where he is, so far as this matter and its application to eugenics is concerned.

The trouble with our food supply is that it is wrongly distributed. We have our population thickly centered in a few places, and then there are great areas, capable of raising wheat enough to feed the whole world, which are not being used because of the impossibility of getting the grain to market. Half of the product of the fields of Russia is turned into alcohol, as the grain itself is too heavy to be profitably transported. On the other hand, we do not have to go to Russia for example of this. Right here in our own United States an enormous amount of alcohol which we are selling at 40 and 50 cents a gallon is made from the grain which should feed the people. Does the high cost of living mean that we have not enough grain to feed the people, and yet we practically burn it up (change it to alcohol). Something is wrong somewhere, but it does not seem to me that it is with the ability of the earth to feed the people.

Dr. Hoag has mentioned also the question of immigration, intimating that it is not an unmixed blessing. Well, I have a little to say in answer to that. Some time ago, reading a biography of Washington, I read that he traveled from New York to Trenton; of course he traveled by post, and it took him from three to four days to accomplish the journey. Now we make that journey in about two hours and with a degree of comfort which he never dreamed of. His journey cost him $180 (and in those days the buying possibilities of a dollar were about ten times what they are now), and it costs something like a dollar to make the journey now. Why the difference? Because at the time of Washington there was almost no immigration; there were not enough people to do the actual labor of road-building. Thanks to immigration we travel cheaply, comfortably and quickly.

Coming back to the chief subject of Dr. Hoag's paper: I think I shall also have to take issue with him on his statement that the highest types are the least prolific. I should say that the difference is not in the degree of civilization of a given type or race, but simply in the fact that the higher types, the more intelligent, understand better what they are doing when they bring children into the world. They know that they must be raised and educated and they can calculate the expense of this, and then they figure the number of luxuries they will have to deny themselves in order to raise their children, and they govern themselves accordingly. That will account absolutely for the smaller amount of children in France and in other countries

One hears so much of the "impulsive Frenchman." I tell you the Frenchman is far more methodical than the German. He does everything in the world to raise not more than two children, but he raises them and conducts his own entire life in such a way that when he dies he leaves them a certain amount of income. "rent" it is called, and that will account for the small birth-rate; not the fact that they are *unable* to have more children. The same Frenchman, when he leaves France and goes, for one reason or another, to one of the colonies as an aristocrat will have flourishing around him six, eight or ten children. Why? Because the means of livelihood are easy there and he will not have to wonder how he is going to be able to leave those children in comfort and ease when he dies.

So, the restriction of progeny is not a question of race, not a question of higher mentality, but just simply a matter of selfishness. The same thing is true of our own small infantile population in the eastern states.

When it comes to the question of political unrest, which Dr. Hoag also ascribes to the lack of food supply, I think again his theory will not stand the test. That, too, is a question of having and not having which we can readily understand when we bring to our mind the fact that in our own country, a few over one thousand people out of ninety-two millions are possessed of three-fourths of the country's wealth. That is where the trouble comes in. It is not the *lack* of wealth, it is not the *lack* of food, but the wrong distribution of it.

Then, again, I believe that a good deal of our political unrest is a racial unrest, which is contrary to the Malthusian theory. If he was correct, the countries having the least population would have the greatest quiet. Now we know that practically the opposite is true, as we see in Russia.

We find that in the past fifty or sixty years we have heard of all sorts of races and countries of which we had not the slightest knowledge before. We hear of their customs, their policies, what they have and do not have, and it is this awakening national as well as an individual self-consciousness of hitherto dormant races which, I believe, will account in some measure for the political unrest.

Junius C. Hoag (closing the discussion): One of the speakers took the ground that the whole trouble with society lies in the unequal distribution of wealth. He thought that if we would adopt the single tax wealth would be equally distributed and everybody would be happy. But such opinions as this have nothing to do with the argument with which we are now concerned. The argument is that population naturally tends to increase more rapidly than the food supply and that therefore we should seek to discourage the procreation of helpless human beings who are only a burden to society and aim to encourage the multiplication of those who are sound and capable of self-support. The eugenists do not expect to revolutionize the world in a few years, but they do hope to create a healthy public sentiment that will demand national laws looking to the improvement of the human race, and they hope to educate the public with regard to the duties they owe their families and their descendants.

No one doubts that the human race is and always has been wasteful of life and of the means whereby life is sustainable, but there are not many who seem to realize that we are even now beginning to feel the results of such wastefulness in our present circumstances of life. One of our present burdens is the taxation required for maintenance and increase of armies and navies, the demand for which is occasioned by the unhappy condition of those people who have overcrowded their own countries and are now reaching out for others. For the relief of such conditions it is necessary to improve the human breed, and teach economy and the better utilization of the gifts of nature. This idea may be illustrated as follows: there are three essentials to the growth of plants, potassium, nitrogen and phosphorus. We can take coarse unproductive sand and by introducing these three elements produce plant life abundantly; but leave out any one of them and our efforts are futile. Germany is the chief possessor of the potassium salts; the United States possesses three-fourths of all the known phosphates. As for the nitrates all have access to them in the atmospheric air at least. In the State of Illinois, it is stated, the upper seven inches of the soil contains 1,191 pounds of phosphates to the acre and every time a seventy-five bushel crop of corn is raised 17 pounds of phosphate are used up. So far as human knowledge now extends the capabilities of the soil are absolutely limited by Nature and it behooves the human race to practice economy in wisely cultivating the earth.

With regard to the increase in population, I have been unable to find that any one has successfully refuted the doctrines of Malthus. When he expressed the opinion that the human family tended to double in number every twenty-five years he probably did not exaggerate. In the case of the Pitcairn islanders the population increased ten fold during a period of forty years. In France, where the population increases slowly, it has been pointed out that the sparsest population is found in the rich southern provinces, while the densest population is

found where the climate is bleak and the land poor, as in Brittany. It is stated by some writers that such relations hold good in all countries. This indeed corresponds with Herbert Spencer's dictum, the higher the type of life, the less its multiplicity. Stock raisers have long known that when their animals become too fat they cease to breed and horticulturists make similar observations with regard to their own productions. Hugh Miller observed seventy years ago that on the inhospitable coast of Scotland the tobacco plant when first set out would grow to a height of four feet; but in each succesive year it dwindled until in a few years it would reach a height of four inches only, and then when threatened with utter extinction it appeared to exert all its energy in its efforts to reproduce its kind, as seen in the unwonted profusion of its flowers and seeds. The poor tobacco plant, said Miller, was like the impoverished Irish whose productivity is so great that were all other nations obliterated they alone would be able to replenish the earth. From such considerations as these we argue that the paucity of the French is not altogether a matter of choice but largely the result of a natural law.

A law permitting castration would probably be declared unconstitutional in that it would be an unnatural and unusual punishment, an objection that can hardly attach to the law regarding vasectomy.

As regards priority of claim to the operation of vasectomy, I am not qualified to speak. The earliest operations of which I have any knowledge are those performed by Dr. Sharp in 1899.

THE TREATMENT OF DELAYED RESOLUTION OF PNEUMONIA*

JOSEPH M. PATTON, M.D.
CHICAGO

Delayed resolution of pneumonia is a condition of considerable clinical interest from diagnostic, prognostic and therapeutic standpoints. We are not always able to tell just why the exudate fails to resolve; we are often concerned because of the probability of permanent crippling of the lung as a result of a tedious and incomplete resolution and we are forced to abide the ineffectual results of therapeutic measures which are empirical and unsatisfactory.

The clinical associations of delayed resolution have a wide variety, and while it is true, as stated by Leyden, that it occurs in old, debilitated patients and in those who exhibit sequelæ, it is also true, as stated by Aufrecht, that a pneumonia which is of typical course and which exhibits a crisis may also show delayed resolution. It occurs in all kinds of patients, at all ages, in various types and combinations of infections, the one almost constant feature of its occurrence being related to its topography. It is almost exclusively a feature of pneumonias occurring in the lower lobes of the lungs. This is especially true of cases where the failure of resolution is purely due to intra-alveolar conditions, such as failure of autolytic digestion from absence of proteolytic enzymes and is not connected with lung abscess or encysted pleural effusions.

McCrae, of Baltimore, states that three-fourths of the cases of delayed resolution occur between 17 and 40 years of age; that the colored race shows high incidence as compared with the white race; that apical

* Read before the Chicago Medical Society, Jan. 11, 1911.

location, advanced age, debility and cachexia apparently have no statistical importance; that the lower right lobe is most often involved, possibly because of diminished motion due to the proximity of the liver; that physical signs vary during both periods of delay and clearing; that diagnosis is by exclusion, especially from emphysema and tuberculosis, and that while danger to life is not great, complete resolution is doubtful and permanent change in the lung may appear in a short time.

The clinical course of pneumonias of the lower lobes of the lungs is notoriously atypical, but none of these variations from the usual course enable us to prognosticate a delay in resolution with any certainty. A constant low leucocyte count is often suggestive of such a termination to the regular course of the disease, while on the other hand I have known a count of 25,000 to be associated with delayed resolution, and in the absence of local pus collections, the temperature never having been normal.

Generally speaking, if the temperature has once reached within one degree of normal, and if this is followed by a leukocyte count of from 12,000 to 18,000 with a switching temperature, we have to deal with a lung or pleural abscess; in those cases, however, where there is neither marked crisis or lysis, but a continuation of all symptoms subjective and objective, with a markedly remittent temperature and sometimes sweats, we may have a fairly high leukocyte count as part of the symptom-complex of delayed resolution. It is usual though to find the count below 10,000 in cases which have exhibited lysis and in which the temperature does not continue to range very high.

The essential nature of the changes which mark the transformation of red hepatization into gray hepatization, and this through purulent infiltration and absorption, and the reasons for the failure of the latter part of this process are not clearly understood. Whether this failure rests in variations in the exudation of leukocytes into the terminal bronchioles and peripheral portions of the alveolar spaces with subsequent granulation of the fibrin nucleus in the center of the alveolar space, or whether it is due to failure of autolytic digestion, or what relation the latter may have to the former processes; these are questions still unsettled.

It is doubtful as to whether the alveolar cells are concerned in the process under discussion. That they have ability to deal with initial infections is maintained by Briscoe, of London, who states that mononuclear cells, whether containing pigment granules or not, are present in the alveoli, and when of sufficient size they are powerful phagocytes. This action is due to opsonins present in the blood serum or attached to injected bodies, and in mild infections these can free the lungs of organisms without the intervention of leukocytes. The latter, however, lend active assistance in violent but not fatal infections. Some phagocytosis occurs even in fatal infections.

According to Ins, Slajansky and Friedlander the alveolar cells may or may not be phagocytic, but the chief phagocytes are leukocytes from the blood-vessels.

Fleiner and others state that the alveolar cells are of two kinds—small nucleated cells and large non-nucleated cells. On the other hand Arnold and Zeigler maintain that the large cells are nucleated and phagocytic. Kölliker, Stricker, Coats, et. al., say that the alveolar cells are nucleated and phagocytic. Ruppert, Fleck, Loehr and Dreschfeld also maintain the presence of phagocytic action in the alveolar cells.

According to Aufrecht, Pratt, Buhl, and others, large round nucleated cells, transitional leukocytes with phagocytic properties, probably derived from the alveoli, are a feature of the first stage of pneumonia. This is followed by stasis in the alveolar vessels (Pratt, Jurgenson), transudation into the alveoli of fibrin and extravasation of blood from the capillaries into the alveoli, the whole constituting red hepatization. The feature of gray hepatization is the filling of the alveoli with round cells which, according to Cohnheim, are from the blood-vessels. The alveolar epithelium is said by Aufrecht to suffer no changes during the stages of red and gray hepatization, remaining always in proximity to the alveolar walls. Pratt has seen polymorphonuclear leukocytes and large leukocytic cells which included red blood corpuscles, lymphocytes, plasma cells and desquamated epithelial cells. He thinks these were derived from the cells lining the alveoli. The color at this stage, generally stated to be due to substitution of white for red corpuscles is said by Pratt to be due to empty capillaries.

The last stage, purulent liquefaction, or resolution, the necessary termination concomitant with gray hepatization, appears to depend on chemical changes which we do not understand. Aufrecht states that it is a granular disintegration of the fibrin that makes liquefaction of the exudate possible. According to Hasse the contact of pus with the fibrin causes the latter to become loose, pale, yellow and of sticky consistency.

From this summary of the views on the alveolar changes in pneumonia it is evident that we are not in a position to define exactly the nature of the factors which determine whether or not in a given instance resolution will occur. We cannot deny the possible influence of phagocytosis by either the alveolar epithelium or leukocytes, nor do we understand in how far the chemic action of the proteolytic enzymes depends on the flooding of the alveoli and terminal bronchioles with leukocytes, but it appears certain that a local massing of leukocytes is a most important feature of the process.

We might mention that Floyd and Lucas, who have treated pneumonia in man with extracts of rabbits' leukocytes and observed no harmful action, "feel that when a case of pneumonia is treated early with extract of leukocytes, and full and frequent doses given when they are required, this may prove of considerable therapeutic value."

The treatment of delayed resolution of pneumonia has remained entirely empirical and, for the most part, unsatisfactory. The use of the various tonics and alteratives internally, while of general benefit, are not accompanied by direct results. Many cases clear up spontaneously

and those which do not are so slow in responding to medicines that we are always concerned about the possibility of permanent crippling of the lung.

McCrae claims that the *x*-ray is a most hopeful therapeutic measure, but one which must be used with caution and only after a positive diagnosis.

A number of years ago, I was surprised to note the rapid clearing of the lung in a couple of cases of delayed resolution in which I had punctured the lung in two places while searching for a pulmonary abscess which I failed to find. In this connection the following abstract of case histories is of interest:

Woman, aged 26 years; nurse by occupation. Seen in consultation on the fifteenth day of illness. Unresolved pneumonia of left lower lobe. Temperature 101°-101.5° at night. No breath or voice sounds below fourth interspace in anterior axillary line. Lung punctured through sixth interspace in anterior axillary line. No fluid. One week later temperature normal, lung clearing. Two weeks later good respiratory sounds through lower lobe.

Child, female; aged 9 years. Pneumonia early in December, 1899. Seen in consultation on fifteenth of following January. Unresolved pneumonia of left lower lobe. Temperature 102° in afternoon. Sweating at night. No breath or voice sounds in lower anterior part of left lung. Lung punctured through sixth interspace in anterior axillary line. No fluid. Three weeks later child playing out of doors, completely recovered.

The result in these cases led me to think that the puncture of the lung was in some way responsible for the change in the condition of the patients, and I determined to try it in instances where local abscess of the lung or pleura was not the point at issue, of which the following histories are examples:

Young man, aged 19 years. Unresolved pneumonia of lower right lobe; sick sixteen days (March, 1901). Temperature 101° at night. No sweating. No respiratory sounds over portion of lung unresolved. Very slight voice transmission. A few râles in upper portion of lobe. Puncture of lung through seventh interspace, midaxillary line. Six days later temperature normal at night. Two weeks later good respiratory sounds all over lobe.

Man, aged 54 years. Seen in consultation in February, 1907. Sick twenty-two days. Unresolved pneumonia of lower lobe of left lung. Temperature 101° at night. Slight sweats, slight voice transmission, but no respiratory sounds in involved lobe. Puncture of lung through seventh interspace in the posterior axillary line. Gradual improvement began at once. Went to California three weeks later. Three months afterward returned with lung in good condition.

The fact that puncture of the pleural or abdominal cavities will cause a moderate leukocytosis made me think that the effect of the proceeding adopted in these cases on the leukocyte count might be of interest in demonstrating that some reaction follows. The following cases are of interest in this connection:

Man, aged 45 years. Cook County Hospital patient March, 1909. Unresolved pneumonia of lower lobe of right lung. Sick 18 days. Temperature 100°-101° at night. Slight voice transmission, but no breath sounds over lobe affected. A few râles in upper portion of lobe. Leukocyte count 9,000. Puncture of lung; 36 hours later leukocyte count 18,000. Three days later leukocyte count 12,000. Patient much improved, left hospital.

Man, aged 26 years. Hospital patient. Admitted Dec. 22, 1909. Sick seven days before admission. Unresolved pneumonia of lower lobe of left lung. January 8, twenty-eighth day of disease, leukocyte count 8,000. Lung punctured. January 10, leukocyte count 12,800. January 11, leukocyte count 14,000. January 12, pericardial friction rub developed. January 13, leukocyte count 11,500. Resolution practically complete one week after needling of lung.

Man, aged 26 years. Hospital patient. Admitted Nov. 5, 1910. Sick one week before admission. Unresolved pneumonic area about as large as one's hand in upper portion of lower lobe of left lung in midaxillary line. During the third twenty-four-hour period after admission temperature dropped from 104° to 99°, and from then on was, with two exceptions, never above normal. On the fifteenth day, ten days after admission the leukocyte count was 17,600. Lung punctured. Twenty-four hours later, leukocyte count 9,400 (two counts); on the 18th leukocyte count was 11,000. A week after puncture patient left the hospital with lung fully clear.

I show you herewith clinical charts of such portions of the history of these two cases as are of interest in this connection. It might be supposed that in the one case the occurrence of the pericarditis had something to do with the variation in the leukocytes, but I do not think that it in any way modified the history of the case. The pericardial affair was such as is frequently observed during the course of a pneumonia, and disappeared promptly, causing no disturbance while present.

In the case last cited it was the first opportunity I have had of practicing puncture of a small definitely outlined area of non-resolved pneumonia in a patient exhibiting a normal temperature for some days. The prompt drop in the number of leukocytes was a surprise to me, and a result I do not understand.

The puncture is done with an ordinary aspirating needle which is passed into the center of the consolidated area as near as can be determined, to a depth of from two to two and one-half inches. The needle may be withdrawn to the surface of the lung and then inserted in a different direction.

A Western physician told me at a meeting of the A. M. A. several years ago that having read my mention of this proceeding during a discussion on the treatment of pneumonia before the Chicago Medical Society, he had practiced it in two or three instances with marked success.

I would call attention to the fact that Dr. Alexander Hugh Ferguson in his oration in surgery before the Minnesota State Medical Association, 1904, recommended drainage of the lung in pneumonia because of its effect in hastening resolution.

It is not apparent to me that drainage is necessary in cases simply of delayed resolution because I believe that simple puncture will answer. At least, it should be adopted before harsher measures are decided upon.

DISCUSSION.

Dr. A. H. Ferguson: I feel that I must discuss this paper myself, if you will permit. Puncture of chronically inflamed tissue to hasten absorption is a surgical procedure that has been known from time immemorial. Incisions of the hands, of the feet and different parts of the body where there was delayed resolution has (we may almost say) always been done. I think the idea was orig-

inally to give the capillaries a chance to get in their work, on the one hand, and to produce drainage on the other. Through this process the lymphatics came into play and the thing subsided.

Mistakes have been made, as you know, which have resulted most advantageously to the patient. That was the way I introduced this procedure once. In a mistaken diagnosis, in consultation with six, I proceeded to operate on a supposed empyema of the right lung. After I had removed a rib we found no pus in the pleural cavity. Then we thought there might be an abscess, and in poking around to find it (and we did not find it) I made several punctures. The patient began to get well almost immediately. I heartily recommend the proceeding.

Dr. Joseph M. Patton:—There having been so little discussion, there is little that I can add to the paper, because we do not know enough about the nature of the change in a consolidated portion of the lung to tell what is taking place. If we know how much of this process was a chemical one and how much a physical one, depending on the cells and their phagocytic ability, we might discuss this, but we do not know enough about that to say why it does not resolve as it should and why it resolves when it is irritated.

It is evident, at any rate, that the leukocytes have a little to do with it, but whether resolution is checked by the physical relation of the consolidated portion of the lung or whether it is because the phagocytic properties of the cells are interfered with, we cannot say. In the last case cited it is evident that anatomic relations of the consolidated portion had nothing to do with the failure of resolution.

In some cases cited we might take it as a coincidence—the time that the procedure was taken up and the recovery of the lung, but in the last case it cannot be called so. There was a man who had had a crisis, had gone a week without temperature, had a well-defined area of consolidation about as big as one's hand which had remained in that condition for a week or ten days with no sign of improvement; immediately on being punctured it cleared up. In view of this, in properly selected cases, at a proper time it seems to me that it affords us an opportunity to prevent many of the chronic conditions of the lung which remain after pneumonia.

THE DIAGNOSIS OF RENAL AND URETERAL CALCULI*

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CHICAGO

The cystoscope, the urethral catheter and the *x*-ray have revolutionized our ability to recognize surgical lesions of the kidney. Although the use of these methods of diagnosis requires special training and constant practice in order to maintain a sufficient degree of accuracy, the general practitioner can no longer afford to be ignorant of the great progress which has been made as the result of their routine use in the diagnosis and treatment of surgical conditions of the urinary organs.

One can no longer rely on clinical signs alone in this field of surgery. It is only through a careful analysis of the symptoms, physical findings and the use of the above methods that we can hope to advance. In no class of cases is one more apt to find surprises, often unpleasant ones, than in this one.

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* Read before the McDonough County Medical Society, Jan. 3, 1911.

The early history of the development of gall-bladder surgery showed the impression to be quite general that every case of gall-stones must show one or both of two cardinal symptoms, viz., colic and jaundice, before a diagnosis sufficient to justify operation could be made.

Unfortunately, the impression still exists in the minds of many that a diagnosis of renal or ureteral calculi cannot be made unless colics or hematuria have been present at some period in the clinical history. That these and similar views are wrong is the daily experience of those who operate on kidney cases. Symptoms which point directly to the kidney or ureter as the seat of mischief are so often absent that it is a common occurrence to see cases showing persistent temperature, pus in the urine in large quantities, progressive emaciation or even anuria treated for other conditions than those of surgical lesions of the kidneys. A patient with chills, fever and sweats, or one suffering with symptoms of severe septic intoxication may be treated for days or weeks for malaria, malignant endocarditis, typhoid and even cryptogenetic septicemia, because the localizing signs pointing to the kidney were either slight or, as is more frequently the case, the urinary organs were not thought of as the possible source of the symptoms.

The object of the present paper is to call attention to the necessity of making an early diagnosis in one class of kidney and ureteral cases, viz., those in which calculi are present. As was previously stated, this is not a subject which concerns the surgeon alone, but is of equal importance to the general practitioner, who is usually the first to see these cases.

As our experience increases, we are forced to the conclusion that there are no pathognomonic signs of renal or ureteral calculi. Although the majority of surgeons are as yet unwilling to accept the dictum of Kümmell, "no shadow, no stone," it must be acknowledged that this is true in about 99 per cent. of the cases. In a recent report of 245 operations for renal and ureteral calculi, Israel[1] reported only three cases in which there had been a positive shadow, but no stone found.

A positive skiagraph taken by one familiar with the special technic requisite to the taking of such pictures is at the present time the only absolute test of the presence of a renal or ureteral calculus. Few surgeons would be willing to undertake an operation on the strength of a negative skiagraph.

I will briefly review some of the rules to be observed in order to obtain trustworthy pictures.[2] The patient must be thoroughly purged and allowed to drink only clear fluids for twelve hours before taking a picture. The latter is best made with the compression apparatus of Albers-Schönberg. Two views should be taken, the first to include both kidneys and the upper part of the ureters (as shown in Figure 4), and the second to include the lower portion of the ureters and the bladder. It is absolutely necessary to include both kidneys and both ureters in the

1. Neuhauser Folia Urologica, vol. iv.
2. A more detailed description can be found in two previous articles in Southern Medical Journal, February, 1909, and Surgery, Gynecology and Obstetrics, April, 1910.

pictures, because the calculi are more frequently present on both sides than was formerly suspected.

A skiagraph, to be considered perfect, must show the last two ribs, the transverse processes of the last dorsal and all of the lumbar vertebræ and the outlines of the psoas muscle.

Skiagraphy shows us whether (a) calculi are present on one or both sides (Figure 4); (b) the number and shape of the calculi (Figure 3); (c) their location (whether in the parenchyma or in pyo- or hydronephrotic cavities, or in the ureter, or in the bladder [Figure 5]).*

Fig. 1.—Calculus lying in pelvis of kidney. Wire bougie passed into pelvis alongside calculus.

The shadows of suspected renal calculi must be differentiated from scybala in the intestines, from infarcts in the kidney, from tuberculous foci, from calcareous mesenteric glands, and from centers of ossification in the ribs. The shadows of ureteral calculi must be distinguished from foci of ossification in the pelvic ligaments, from phleboliths and calcified glands. If the patient has been carefully prepared, the chances of error in interpreting a renal skiagraph are very slight. In the case of suspicious shadows in the line of the ureter, one can in cases of doubt take another picture with a bougie of fine fuse wire inserted into a ureteral catheter.

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* I am indebted to Drs. L. E. Schmidt, D. F. Monash and Arna Braunwarth for permission to reproduce three of the radiographs accompanying this article.

If stone shadows are present, the skiagraph shows whether or not the kidney is in its normal position. If one wishes to be absolutely certain of its location, it is best to inject a solution of some silver salt like ten per cent. protargol or fifty per cent. cargentos through a ureteral catheter or insert a wire into the ureter, as described, and take another picture. Both of these methods yield such deep shadows of the renal pelvis and of the ureter that the former method (injection of silver solutions) is not only useful in showing the location of the kidney, but gives one a good idea as to the amount of dilatation of the renal pelvis.

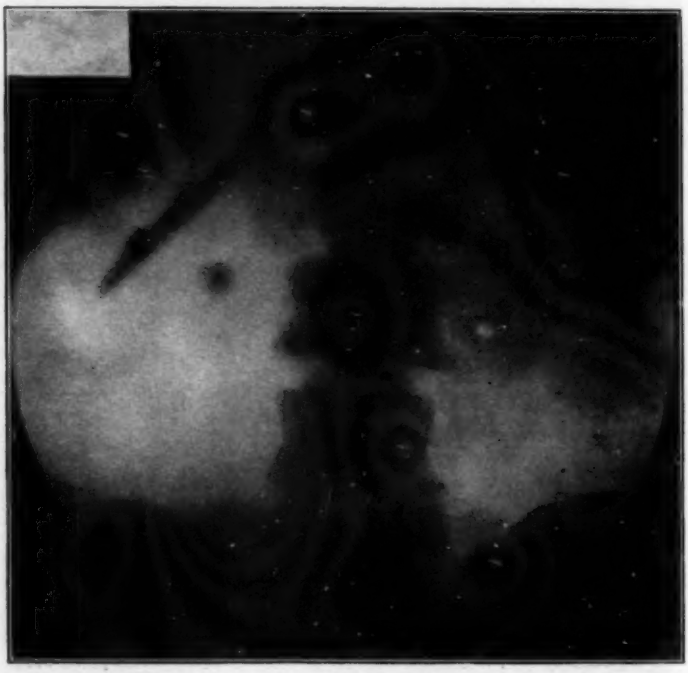

Fig. 2.—Calculus lying at junction of pelvis of kidney and ureter, and a second calculus showing shadow behind a long twelfth rib.

The reason why I have mentioned the skiagraph first is that it is in nearly every case the *court of last resort* in the diagnosis of renal and ureteral calculi. As was stated above, one must not, however, forget that the general practitioner does not have the advantage of such special methods. He must depend to a great extent on the history, the symptoms and ordinary methods of clinical diagnosis. He should, however, be able to draw the conclusion in the majority of cases, first, that the urinary tract is the seat of the trouble; second, that he can exclude one by one the various diseases of these organs and arrive at a fairly accurate diagnosis of calculi as the source of the kidney trouble.

My own observations on a relatively large number of kidney and ureter cases of all kinds have taught me that the presence of calculi does not always result in the same clinical picture. I will tabulate the various clinical forms and then quote personal cases to illustrate the chief varieties. There are in general seven classes.

1. Those in which there is a history of one or more renal colics.
2. Those in which fever of obscure origin is the chief symptom.
3. Dull lumbar pain is the only symptom.
4. The continued presence of pus or of blood in the urine attracts the attention of the physician or patient.

Fig. 3.—Multiple calculi lying in hydronephrotic cavities in a case of bilateral calculi.

5. Those cases in which the sudden onset of anuria is the first sign.
6. Latent cases. The presence of calculi is only discovered during other kidney or ureteral operations.
7. Mixed cases. Those in which calculi accompany tuberculosis or neoplasms of the kidney.

I will take these up a little more in detail.

CLASS 1.

Renal colic is the most prominent symptom and the chief one for which the physician is called or consulted.

M. C., referred by Dr. M. C. Hecht, of Wilmette, with the diagnosis of renal calculi. Female, aged 48 years; history up to one year ago negative. Since that time three attacks of typical ureteral colic. During the first two attacks pain well localized over left kidney, so severe as to require opiates, and radiating around toward umbilicus and toward bladder and groin. Blood found microscopically during attacks, but disappeared in intervals. Very stout person, but *x*-ray showed distinct small round shadow at level of transverse process of second lumbar vertebra. Diagnosis of calculus in upper part of ureter confirmed at operation. Ureter incised over impacted calculus, just below renal pelvis, and uric acid calculus the size of a bean removed.

The urine being clear, the ureteral incision was closed with catgut.

Remarks.—This was a case with typical colics, showing the characteristic severity and radiation of pain, and accompanied by hematuria.

In a normally located kidney, a stone shadow (Fig. 2) lying opposite the transverse process of the first lumbar vertebra means that the

Fig. 4.—Bilateral renal calculi. On the left side a long, pencil-like calculus projects into ureter.

stone is located just at the outlet of the renal pelvis, and can be best removed through an incision (pyelotomy) into the posterior avascular aspect of the pelvis, a method of operation which is easier and far less apt to be accompanied or followed by bleeding than the older method of extraction through an incision through the convexity of the kidney (nephrotomy). When the shadow is lower down, as in this case, the calculus lies in the upper part of the ureter. It is best to drain the ureteral incision when the urine contains pus; if it is clear, the ureter can be safely closed with catgut.

It would be necessary in a case of this class to distinguish between (a) colics due to other renal conditions, such as kinking of the ureter due to floating kidney (Dittl's crises), ureteral crises due to tabes and ureteral colic accompanying some forms of nephritis, or colics due to

the passage of clots in tumors, or of pus plugs in tuberculosis, and (b) from colicky pain due to extrarenal or ureteral conditions, such as appendicitis, gall-stones, lumbago.

Differentiation from other Renal Conditions.—In movable kidney, the differential diagnosis is very difficult during the attack unless a tumor due to the temporary obstruction of the urine is found during the attack, and is absent in the interval (intermittent hydronephrosis). There is usually scanty urine during and polyuria after the attack.

Visceral ureteral crises due to tabes must always be thought of in middle-aged patients. The negative urinary findings and the discovery of symptoms of tabes will readily exclude the condition.

Fig. 5.—Two calculi lying in pelvic portion of ureter.

Colics due to nephritis are accompanied by other urinary and general evidences of the condition. Colics due to tumors of the kidney are accompanied by the passage of blood in much larger quantity than in the case of renal calculi.

Differentiation from Extrarenal Conditions.—In appendicitis there is more localized rigidity, but little radiation of pain, and the pain is not, as a rule, quite so severe. In some cases, where the appendix lies in close proximity to the ureter, there may be blood in the urine during

the attack. This has been termed appendiceal hematuria. In other cases the two conditions may coexist. In every doubtful case of appendicitis it is best to take a skiagraph. In one of my cases the *x*-ray was negative at the time of operation for acute appendicitis, but the patient passed a calculus later.

Gall-Stones.—The right hypochondriac location of the pain and its radiation to the shoulders is quite characteristic, but in cases where the gall-bladder lies lower, the differentiation without the use of the *x*-ray may be difficult. Fortunately, only about ten per cent. of gall-stones

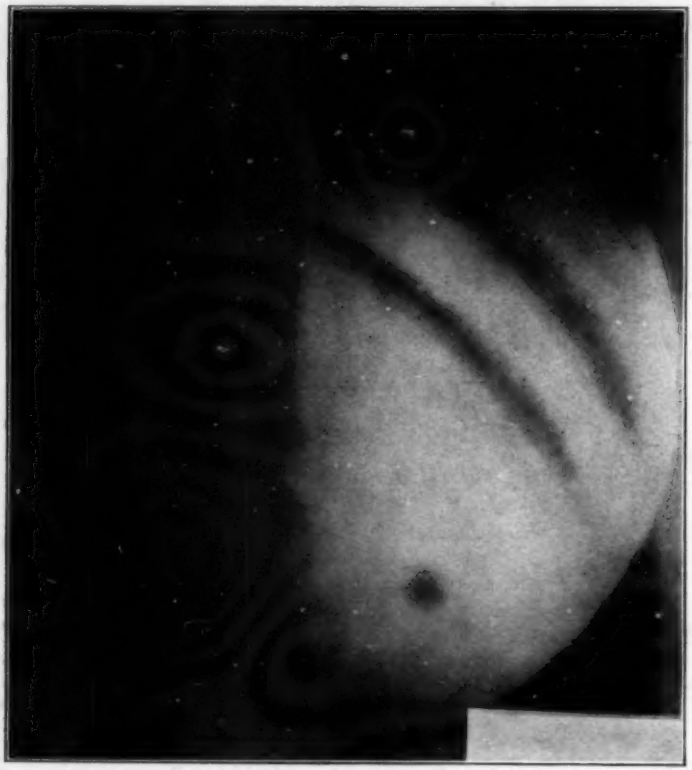

Fig. 6.—Calculus lying at junction of renal pelvis and ureter in a low-lying kidney.

show a shadow, and even this when present is not located where a renal calculus of its size would be and could be easily differentiated by the use of the lead bougie. In closing, it must not be forgotten that pain due to renal calculus may occasionally be referred to the opposite side.

CLASS 2.—*Fever of Obscure Origin the Chief Symptom.*

J. K., aged 50 years, consulted the writer on account of a post-operative hernia following operation for appendicitis one year before, in another state. Tempera-

ture 102 F. History of repeated chills and fever for past six months. No evidence of local or right-sided subphrenic abscess. Attention directed to kidney as source of fever, on account of history of passage of calculus fifteen years before. Urine contained large amount of pus. Cystoscopy negative. *X*-ray showed two stone shadows, one high up in left ureter, the other in renal pelvis. Operation showed former tightly wedged in upper part of ureter, almost completely obstructing urinary flow, and thus favoring ascending infection.

Remarks.—This shows the necessity of remembering the kidney as the seat of origin of obscure fever when other sources of temperature have been excluded. A calculus lying in the ureter or at the outlet of the pelvis may do no harm until it begins to obstruct the flow of urine.

If the urine remains aseptic, there is resultant dilatation of the ureter or of the renal pelvis, until there is complete pressure atrophy of the renal parenchymata (hydronephrosis). I will enumerate, in connection with this case, the chief pathologic changes which may be the sequel of stone in the kidney or ureter.

In the aseptic calculous kidney the possible pathological changes are: (a) A contracted kidney, due to the production of connective tissue between the tubules; (b) a variable degree of hydro- or, more properly speaking, uronephrosis. As a rule, this second sequel is of minor degree unless the ureteral orifice is almost completely blocked.

In the infected, i. e., septic calculous kidney the possible sequelæ are (a) pyelitis, which is in reality seldom confined to the pelvis alone, but extends upward along the tubules and involves the parenchyma. (b) A pyelonephritis, in which the parenchyma may be simply the seat of an extensive leukocytic infiltration, or the infection is more active and causes the formation of multiple miliary and larger abscesses scattered through the medulla and cortex. The macroscopic appearance of such kidneys, with their groups of little abscesses scattered over the cortex, is quite typical. (c) A pyonephrosis. This is an advanced stage of the condition described as pyelonephritis, and is the result of the disintegration of the parenchyma, with the formation of large cavities separated by septa and containing pus and calculi. If the ureter is blocked the entire kidney is converted into a sac containing pus and calculi. (d) An infected hydronephrosis. In this an aseptic hydro- or uro-nephrotic calculous kidney becomes infected and the dilated pelvis or calyces, instead of containing urine alone, contain both urine and pus, there being sufficient parenchyma left to continue the excretion of a fair amount of urine. (e) The various forms of paranephritic complications of an infected calculous kidney. Here we may have either a paranephritic abscess or the production of granulation, and later of scar tissue around the kidney. Finally, we may have (f) a part or the entire kidney parenchyma replaced by fat, whose origin is probably in the capsular fat. An instance of such a sequel of infected stone kidneys has been reported[3] by the writer.

Fever, as we can readily see from these possible effects of calculi in the kidney or ureter, can predominate the clinical picture. This is espe-

3. Annals of Surgery, November, 1908.

cially true in those patients who either give a negative or indefinite history, as to colics, etc. It has become my routine practice to consider the kidney as one of the first organs to be excluded as the possible source of an obscure temperature.

CLASS 3.—*Dull Lumbar or Iliac Pain.*

Quite a number of cases present themselves on account of a dull aching pain referred, in the case of renal calculi, to either lumbar region. In the case of ureteral calculi, the pain is often quite constant at some point in the course of the ureter. Cases of the latter class are often wrongly diagnosed as being chronic appendicitis, unless ureteral calculi are thought of.

Eric H. Case of bilateral calculi. Bilateral nephrolithotomy. For preceding five years this patient had a dull aching pain lasting several hours daily, sometimes over the right kidney, sometimes over the left kidney. Up to one year before my examination the pain had been chiefly in the right side, but during the past year the pain had been altogether in the left side. There was very seldom any radiation of the pain. During the first four years the urine was always cloudy. He had had several attacks of chills and fever. The *x*-ray showed (Fig. 2) the presence of calculi in both kidneys, which were removed at separate sittings.

Remarks.—This case illustrates how calculi can only give rise to a dull aching pain and yet both kidneys be the seat of one or more calculi. It also shows the necessity of taking pictures of both kidneys, both ureters and the bladder in every case of suspected calculi. It is beyond the province of this paper to discuss the question as to whether only one or both kidneys should be operated on at one sitting. Experience has taught that it is best to remove the calculi from the two kidneys at separate sittings. In the case just cited the kidneys both showed advanced suppurative changes. Ordinarily it is best to remove a kidney whose functionating power is practically lost.

CLASS 4.—*Continued Pyuria or Hematuria.*

Some cases of calculi in the kidney and ureter show pus and blood in varying amount as the only clinical sign. These form only a small proportion of all of the cases of renal calculi. Ordinarily the persistent presence of a pyuria, if one can exclude the urethra and bladder as the source of the pus, should lead to our looking for one or more of the following conditions: Tuberculosis of the kidney, non-tuberculous pyonephrosis and nephrolithiasis. The *x*-ray will quickly exclude the last-named, the absence of tubercle bacilli in the urine will exclude tuberculosis. The persistent presence of blood in the urine should lead to the suspicion of (a) tumor of the renal pelvis or kidney itself; (b) calculi; (c) chronic nephritis.

S. H., aged 50 years, had history of persistent hematuria for ten years. Urine contained many red blood cells, a trace of albumin, and a few hyaline casts. Diagnosis of chronic interstitial nephritis made. No pain during first six years of hematuria. Sudden attack of typical right-sided renal colic with passage of small calculus. Urine soon became turbid and contained large number of pus

cells. During five years' period of pyuria no further attacks of pain. He had occasional slight chills, but no fever. Skiagraph taken eleven years after onset of illness showed left kidney full of large phosphatic calculi which were subsequently removed.

Remarks.—This case confirms the necessity of bearing in mind the possible presence of calculi when there is persistent pyuria or hematuria which cannot be otherwise accounted for.

CLASS 5.—*Calculus Anuria.*

In this class the first symptom of the presence of calculi is often the sudden onset of complete anuria. Such a condition may be due (a) to the presence of calculi blocking both ureters, and this is the most frequent cause, or (b) to the complete obstruction of one ureter by a calculus and a reflex inhibition of the secretory function of the opposite kidney.

M. N., aged 30 years, was admitted to my service in the Michael Reese hospital with marked delirium, high temperature (106 F.) and rapid pulse. Bladder found empty on catheterization during first twenty-four hours. Condition so grave that no operative interference was attempted. Death twenty-four hours after admission. Autopsy showed a calculus blocking right ureter, with secondary septic pyelonephritis and a hypoplasia of the opposite kidney.

Remarks.—This patient never had any attacks of pain. He had been treated for nephritis for preceding five years. Sudden onset of anuria due to complete obstruction of the only kidney which still possessed any secretory power.

CLASS 6.—LATENT CASES.

These form a very small percentage of the entire number. As a rule, the presence of calculi manifests itself under one of the five clinical pictures just described.

CLASS 7.—MIXED CASES.

In this class the formation of calculi is usually secondary to the presence of a renal tuberculosis, or of a renal neoplasm. As a rule, the symptoms of the primary lesions overshadow those due to the calculi.

BRONCHOSCOPY AND ESOPHAGOSCOPY

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Tracheo-bronchoscopy is defined by Jackson as the inspection of the interior of the trachea and bronchi with the aid of tubes which serve as specula, bringing into view successively the various passages, by pushing aside structures that would obstruct the view, or dragging the passages into a new position where they will be in the direct line of vision. Similarly by esophagoscopy is meant the inspection of the interior of the esophagus with the aid of long tubes which serve as specula.

To Gustav Killian of Freiburg is given the credit for devising the technique and showing the practicability of bronchoscopy. His first

publication appeared in 1897, but it is only in the last five or six years that the operation has obtained the universal recognition that it deserves. As in other operations, the more extensively they are practiced the greater are the additions and modifications of the instruments employed according to the ideas of the operator and the necessities of individual cases. In addition to the original tubes of Killian we now have Jackson's tubes which contain on one side a canal for the passage of a metal carrier to which is attached a small lamp and on the other side another canal to which an aspirator pump may be attached for removing secretion. Bruning has devised an extension tube by means of which smaller tubes may be passed through the tube already in place, thus saving time and increasing convenience. Many instruments have been devised for facilitating the work; the sliding spatula of Jackson, the spatula of Ingals for aiding in the introduction of the tubes; the pin-finder of Ingals; the safety-pin closer of Jackson-Mosher; extension forceps of Bruning and numerous others. The sources of illumination are a most vital and necessary part for successful work. Those usually employed are the Kirstein lamp, the small cold electric lamp attached to a carrier or the later Bruning lamp, essentially a Kirstein attached to the tube handle. Either dry or storage batteries or the ordinary electric current may be used provided rheostats are attached to control the current, eliminating the inconvenience of burned-out lights and guarding against shocks to the patient or operator.

The operation of bronchoscopy is divided into two methods: upper bronchoscopy and lower bronchoscopy. The former consists in the introduction of tubes through the natural passages; the latter through a tracheal opening. The latter is easier of performance, but it must not be forgotten that the tracheal wound is an added element of danger to the patient. In the matter of a selection of operation, the upper method is to be preferred provided the condition of the patient permits and, in the cases of foreign bodies, the latter are such that they can be removed without causing too much injury to the trachea and larynx.

The indications for the operation may be broadly summarized as the removal of foreign bodies from the air passages or esophagus and as an aid in the diagnosis and treatment of various conditions in these regions.

The diagnosis of the presence of a foreign body is usually made from the history of aspirating or swallowing some substance, dyspnea coming on suddenly, cough, pain, difficult deglutition, etc. In case a bronchus is obstructed, the physical findings may be quite an aid. The skiagraph is of great value, but unfortunately it does not always reveal the presence of seeds, kernels and shells of nuts.

The operation may be done under local or general anesthesia. Unless one has had a large experience or possesses great skill the latter seems preferable. If general anesthesia is employed ether, preceded by morphin and atropin, is generally considered safer. However, the excess of secretion produced by ether may become a serious handicap to the successful performance of the operation. In that case, one has to rely upon the various aspirating appliances or upon the swab and perhaps

continue the anesthesia with chloroform. Asepsis, sterilization of instruments and the preparation of the patient should be carried out as in other operations. The position of the patient may be either the sitting or recumbent if local anesthesia is used and preferably the re-

Figure 1.

cumbent if under general anesthesia. In the latter the head must be drawn clear of the table, placed in extension, and held rigidly by the assistant. The proper holding of the head is one of the important elements necessary to success and an extended description of the method may be found in Jackson's book on Bronchoscopy and Esophagoscopy.

The dangers of the operation must be taken into consideration. These may arise from the anesthetic, from trauma caused by instruments, broncho-pneumonia, emphysema, pneumo- and pyothorax, and sepsis.

Several years ago I reported to the Chicago Laryngological Society the case of a girl, aged 12 years, with an eyelet imbedded in a mass of granulation tissue springing from the left false cord (Fig. 2, *a*) (*Jour. A. M. A.*, Jan. 4, 1908). This had caused aphonia extending over a period of two and a half years. Only a very small portion of the eyelet was visible on laryngoscopic examination, its nature, however, being satisfactorily disclosed by the skiagraph. Attempts at removal through a tube were unsuccessful, the mass of granulation tissue being forced downward by the end of the tube. I finally succeeded by the indirect method, first cutting into the granulation tissue on either side with a laryngeal cutting forceps, thus loosening the eyelet and then removing it with an ordinary forceps. In retrospect I may say that had a small direct speculum been used instead of a tube, it probably would have been a less difficult matter to remove the eyelet. To this case I wish to add five others that have come under my observation; one of a foreign body in the right bronchus; one partly in the larynx and partly in the esophagus; the others of foreign bodies in the esophagus.

Case 2. F. Z., aged 7 years, was admitted to the service of Dr. Joseph Beck at the Cook County Hospital, but on account of his absence came under my care. One week before admission the patient, a boy, aspirated a stick-pin with supposedly a jewel setting for a head. He suffered no discomfort for five days and was apparently in good health until two days previous to his admission. He then began to complain of pain in the right side of the chest which was more pronounced on coughing. He began to have temperature and felt quite ill. His temperature on admission was 104.2° F. From the physical findings I first suspected pneumonia and kept the child under observation for a few days. However, from subsequent examinations made by Dr. Tice, Dr. Krudinier and myself, the diagnosis was changed to that of a probable collapse of the lung. The physical findings were limited to the lower lobe of the right lung. These were retraction and decreased expansion, decreased tactile fremitus, and dulness giving a sharp line of demarcation from the middle and upper lobes. On auscultation the breath sounds were indistinct and distant, vocal fremitus was decreased, and there were no râles present. The child ran a distinctly septic type of temperature varying from normal on one occasion to 104.2° F. The skiagraph showed the pin in the right main bronchus below the bifurcation with the point projecting upwards. (Fig. 1.) Operation was delayed for over a week after his admission with the hope that his general condition would improve. With the exception of considerable less pain there was no improvement. He was given ether and with the assistance of Drs. Krudinier and Van Pelt, upper bronchoscopy was done. About one-half inch below the bifurcation the point of the pin was found imbedded in granulation tissue. This rubbed off easily on passing the tube over it. The point of the pin was grasped and the pin removed through the tube. Immediately, pus could be seen welling out of the secondary bronchus in considerable amount. The child began to cough so violently that I was forced to take out the tube. The head of the pin could not be found and as there was doubt of its nature, it being a cheap prize-package affair, I decided to postpone any further search for the time being. A skiagraph taken the next day failed to show anything. The patient was kept in the hospital for two weeks. The temperature after a couple of days came down to just a little above normal. Air was found

to be entering the lung and at the time of his discharge, with the exception of a slight relative dulness the physical findings compared very favorably with those of the opposite side. The leukocyte count of 17,400 before the operation had dropped to 7,200 six days after the operation. Subsequent to the operation the

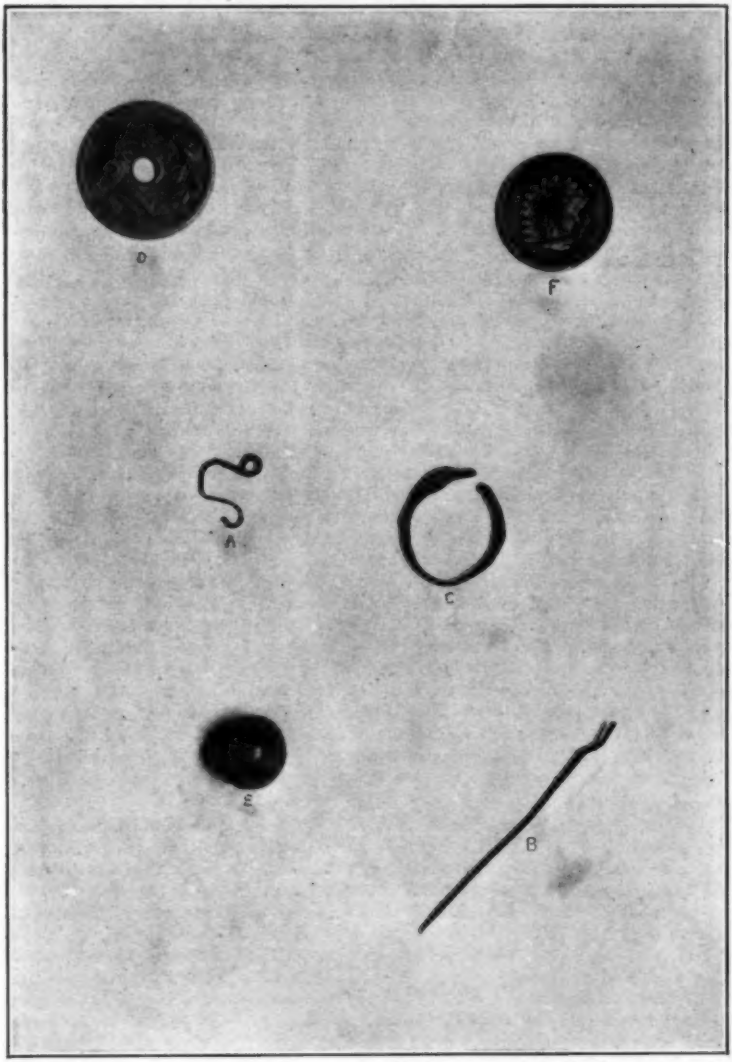

Figure 2.

child's parents stated that they thought that the head of the pin was composed of some soluble substance. However, I am inclined to the belief that it was forced out by the violent coughing attack which came on immediately after the shaft of the pin was removed. The shaft was 4.8 cm. in length (Fig. 2b).

Case 3. B. K., aged 10 months, was admitted to the hospital on the statement of his mother that she thought he had swallowed some foreign body. He had some difficulty in swallowing although this was never very great. The skiagraph did not appear to give a definite picture of a foreign body but as subsequent events proved this was due to an improper interpretation owing to its position and character. The temperature was irregular varying from 98° to 101° F. On account of the history, the slight difficulty in swallowing, and the temperature, it was deemed advisable to make an examination. The child was given a minimum amount of ether, just enough to cause relaxation. The small direct speculum of Ingals was introduced and the foreign body was seen hooked over the left arytenoid, the greater part of it projecting downward and backward through the mouth of the esophagus. On removal it was found to be a small broken ring (Fig. 2c). The interesting features of this case were the slight symptoms caused by the presence of the ring and its arrest in its downward course by becoming hooked over the arytenoid. The child was kept in the hospital for a few days for observation. The temperature subsided rapidly and there was no further trouble.

Case 4. G. D., age 2 years, three days previously had swallowed a Belgian 10 centime piece (Fig. 2d). A number of attempts, instrumentally and otherwise, had been made to remove the coin but to no avail. The temperature on admission was 100° F. At times it went up as high as 102.2° F. The child assumed a position with its face downwards. Considerable blood and mucus came from the mouth. It was very restless and particularly noticeable were the efforts it made to cause vomiting or to reach the coin by thrusting its whole hand as far as it could into the throat. Fluids were regurgitated and each attempt at taking nourishment was followed by severe attacks of coughing. The skiagraph showed the coin with its lower edge about the level of the right sternoclavicular articulation. Under ether anesthesia the following day I attempted its removal. There was considerable evidence of traumatism in the region of the mouth of the esophagus. The esophagoscope was introduced but I was unable to locate the coin. There appeared to me to be considerable edema of the esophageal wall above and in the region where the picture showed the coin to be. I tried to uncover it by using the end of the tube and by the use of various probes but could not succeed. After working for almost 30 minutes, I desisted because I did not think it wise to prolong the anesthetic. At my request, Dr. Ingals kindly consented to undertake the removal of the coin and about six days later the second operation was performed. There was no particular difficulty in passing the tube but as in the first attempt the coin could not be uncovered. However, he finally succeeded in introducing an 8 inch forceps and with this the coin was found and removed. The child gradually failed after the operation and died in about three days. As no post-mortem was obtained, the exact cause of death could not be determined.

Case 5. Female, aged 5 years. Five days previous to admission to the hospital the child had swallowed a marble about 11 mm. in diameter (Fig. 2e). Since that time she had been unable to take any solid food. Her condition was poor and she had a temperature of 101° F. Under ether anesthesia the next day, the marble was removed. Considerable difficulty was encountered in removing it because each time the marble was grasped and drawn upwards the forceps would slip off and the marble would be propelled to the cardiac end of the esophagus. This happened four or five times before the marble was finally secured. Of interest in this case was the fact that the marble, comparatively a small body, was not forced into the stomach by the normal contractive powers of the esophagus. The patient was discharged on the next day with temperature practically normal and in good general condition.

Case 6 (Fig. 2f). E. H., a little girl 1 year of age, was given a penny to play with the day before she came under my care. Subsequently her mother noticed that she regurgitated the milk given her to drink. The skiagraph showed the coin in the upper part of the esophagus. I passed a tube but was unable to see the

penny. Under ether anesthesia the next day I introduced the direct speculum holding the mouth of the esophagus open with its tip. The upper edge of the penny could be seen below about one-half inch from the end of the speculum. It was removed with forceps and the child made an uneventful recovery. My experience with this case emphasized the fact that it is extremely easy to pass a tube to the side of a comparatively large foreign body in the esophagus without seeing it.

In the after treatment of these cases I have adopted the suggestion made by Dr. Ingals of placing the child in a croup tent for from 24 to 48 hours or longer if necessary. By this procedure I believe that the chances of the child being affected by pneumonia are considerably lessened. A point I wish to emphasize is the danger of electric shock especially when the street current is used for illumination. In my last case after removing the penny and while still holding it in the forceps, it came in contact with some other metal with the result that it was somewhat scorched and I received an amount of electricity that was decidedly uncomfortable.

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DISCUSSION

Dr. E. Fletcher Ingals, in discussion, stated that this operation is not entirely without danger. At the International Medical Congress at Budapest, Von Eichen, in analyzing 303 cases of bronchoscopy, found a mortality of 13 per cent. These cases collected from the world's literature did not represent the actual mortality because many fatal cases are not reported. Jackson places the mortality at about 3 per cent., but he omitted certain cases which, if included, would make the mortality 9 per cent. The value of the operation is recognized, but it is important that every means to prevent its dangers should be found. The principal sources of danger are the anesthetic, bronchopenumonia, emphysema, dilatation of the heart, traumatism and sepsis.

Anesthetics: cocain in small quantities properly guarded would do no harm, but the use of larger quantities which may seem desirable to produce anesthesia in the larynx and the bronchi may be exceedingly dangerous, especially in children. Dr. Ingals used chloroform in a considerable number of cases, but now uses ether altogether. This anesthetic also is dangerous when continued for a long time, since it is more likely to cause bronchopneumonia than is chloroform. Dr. Ingals has adopted the plan of giving a full dose of atropin four hours before operation and a second full dose of atropin with a medium dose of morphin one hour before operation to prevent excessive secretions.

Dyspnea adds much to the danger and when severe it is rarely safe to attempt upper bronchoscopy. In any case the operator should be ready to do rapid tracheotomy. In cases of marked dyspnea tracheotomy should be performed first. Intubation may relieve postoperative dyspnea caused by irritation of the larynx.

Bronchopneumonia may be due to either the ether or mechanical irritation. Exposure afterward may also cause it. As means of prevention he urged that the operation should not be prolonged, that it should be as gentle as possible; that tubes which stretched the bronchi should not be used, and that the child be placed in a croup tent for forty-eight hours afterward, keeping it very warm and moist. The temperature should be 85 F. He advised after bronchoscopy the administration of liquor ammonii acetatis, 2 drams every four hours for a child 6 years old.

He referred to a case that he had heard reported where the child died of a rupture of the bronchus, which was probably due to the use of a large bronchoscope. In another case death occurred from hemorrhage. Traumatism may also occur from an instrument with a sharp edge, such as forceps with teeth or any

instrument that might catch the mucous membrane. Formerly he used aspiration to remove the mucus. He now relies on swabbing with sterile gauze in order not to injure the mucous membrane. In one operation two cotton swabs came off in the lung. Since then he uses a small piece of gauze attached to a long linen string.

The danger from sepsis he believes comes largely from introducing the bronchoscope into the esophagus before or during bronchoscopy.

Among things that had aided him much in his work were an old-curved esophagus forceps, which is easily manipulated and which is often effective in removing foreign bodies and especially coins; also an 8-inch artery forceps when the object is in the esophagus above the sternal notch. He had found his open tube spatula with the handle set at an acute angle, about 40 degrees, very helpful in introducing the bronchoscope, and a steel tube director over which the bronchoscope might be passed through the glottis was often very valuable. He always began the operation prepared to use either the internal or reflected light, or both, and generally used both before the operation was over.

Dr. W. E. Casselberry emphasized the importance of a complete rehearsal just before operating on a case in which every bit of apparatus is tested and all of the manipulations gone through on a manikin supported in the position of the patient. This rehearsal is valuable in testing the lights which so often fail when they are introduced into the bottom of the tube. Such a rehearsal will shorten very much the time of the operation. Dr. Casselberry is now using a Kierstein light in addition to the distal light. The distal light illuminates the immediate field, but does not project the light ahead; this is accomplished with the Kierstein headlight. The rheostat and street current are used for the headlight, a pocket battery for the distal lamp. To carry out this plan of illumination he has had the Jackson tube made funnel shaped at the top more like the Killian tube.

The pin cutter referred to was devised by Dr. Casselberry to meet a necessity. It cuts the pin, at the same time preventing the two ends from flying asunder.

Dr. J. C. Beck called attention to the fact that false shadows in the skiagrams are caused by the bronchial tree and calcified bronchial glands. It is important to interpret the skiagram correctly. The only way this can be done is to make stereoradiographs. This removes false shadows and avoids distorted shadows.

He did not agree with Dr. Ingals that it was always easier to pass the bronchoscope into the esophagus than into the larynx. In one of his cases the difficulty lay in not passing the tube into the larynx when he desired to enter the esophagus. He finally succeeded in doing this by not throwing the head of the patient back as far as is usually done.

He desired to place this case on record, the history of which is as follows: Boy, 5½ years old, while playing with a quarter, placed it in his mouth and swallowed it. A few moments later the mother noticed the boy having some difficulty and called the physician who suspected that the coin had lodged in the throat, but on failing to find it by the ordinary examination, he sent the case to the Cook County Hospital, where it came under the care of Dr. Beck. A radiogram was taken and located a shadow much larger than a quarter, about on a line with the sternal notch. This being late in the evening and the boy being able to swallow milk with little difficulty, it was decided to wait until the following day for operation. Just before operating another radiogram was taken and this showed the shadow of the coin in the same position. The patient was placed under a general anesthetic (ether), and by the aid of the Bruenning esophagoscope an attempt was made to remove the coin. As said above, considerable difficulty was encountered in the introduction of the esophagoscope, for there was a constant slipping of the end of the tube into the larynx. By not allowing the head to be retracted as much as is the custom, Dr. Beck was able to pass the tube into the esophagus, but with the disappointment that at the point back of the sternal notch, where he had expected to find the coin, there was none. However, by passing the tube 4 to 6 inches further down, the quarter was encountered

lying transversely or flat against the vertebral column. A pair of grasping forceps was passed through the tube, the coin grasped and the tube, forceps and coin all withdrawn without any difficulty. The boy made an uneventful recovery. A stereoscopic radiogram was not taken. This method would have proved conclusively the great advantage of locating foreign bodies by this method rather than single pictures, which are so deceptive in showing the size as well as the location in the bronchi as well as in the esophagus.

Dr. A. H. Andrews, speaking of the location of foreign bodies in the chest by means of skiagrams, suggested a method he has used in other parts of the body, that is, placing an opaque object in a known position. This will serve as a marker. He usually places one in front and one behind. In one case he was searching for a bullet that was supposed to have been shot into the ear. A piece of metal was placed in each auditory canal. The skiagram showed these two pieces of metal, but no bullet.

NON-SUPPURATIVE ETHMOIDITIS

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In presenting this paper it is not my purpose to take up a consideration or discussion of all the affections of the ethmoid, or even the one which is best known to rhinologists, namely, suppurative ethmoiditis, but to confine myself to a form which has received comparatively little attention, and which to my mind is one of the most important, for by the recognition and correction of this form, we may in a great many instances prevent the suppurative form, and what is far more important, we may often relieve great suffering which has existed for some time and baffled the efforts of rhinologists to relieve it, as they were looking for the manifestations which may not appear till a later period, namely, polypi and purulent secretion.

What an important part the ethmoid plays in relation to the other sinuses can be seen at a glance when we consider that the frontal and maxillary practically drain through this bone, as the hiatus semilunaris and infundibulum are parts of it. This is readily explained if we consider the development of these sinuses. Killian, Zuckerkandl and others claim that the frontal sinus is developed from "the chief developmental groove of the ethmoid." This can happen by an ethmoid cell pushing its way between the lamellæ of the frontal bone. Thus we may have the frontal sinus draining directly into the infundibulum or into another ethmoid cell, and an inflammation of this ethmoid with the attendant swelling of its membrane can easily occlude these openings and block off the drainage from this sinus, thus giving rise to the frequent condition of combined sinus affections.

The membranous lining of these sinuses is contiguous and identical with that of the respiratory portion of the nose, only it is much thinner, that of the ethmoid, according to Zuckerkandl, being thinner than that of the other sinuses. The membrane on the outer side of the middle turbinate is very thin, as can be noted in normal cases, by touching it with a probe.

The lining membrane of the sinuses is subject to the same inflammatory conditions as any other part of the nasal mucous membrane. These can arise primarily, or as is more usually the case, by extension from the mucous membrane of the nose. When the ethmoid membrane is involved we may find all the various changes from that of simple inflammation to the formation of polypi and bone necrosis. As polypi are the manifestations of chronic ethmoiditis it would be well to consider the various views held by different rhinologists as to their origin. Woakes claimed that following some injury or inflammation or so-called catarrh a small swelling developed on the medial surface of the ethmoid, which later coalesced forming myxomatous bodies, at whose base periostitis developed and finally bone necrosis.

Hajek divided the inflammatory changes in the membrane covering the ethmoid into three degrees:

1. A superficial inflammation of the membrane.
2. After it has involved the periosteum.
3. Extending even into the bony structure and manifesting itself by:
   (a) increase of the bony substance, or,
   (b) resorption or degeneration of the same; the former condition being more common.

He claims the formation of polypi is simply a manifestation of the inflammation and not a result of the affection of the bone. Cordes agrees partly with Hajek, but says recurring polypi are due to an ostitis or chronic periostitis with serous exudate, that when they arise from the membrane, a simple removal will cure, but when they recur it proves an involvement of the bone and necessitates its removal so far as the involvement extends. Uffenorde draws the following conclusions as the result of his investigations:

1. The process is progressive and extends from the surface toward the bone.
2. It is not always possible to differentiate histologically between polypoid swelling and polyp formation, as both may involve the deeper structures. Usually polyp development is the more chronic and is more often associated with bone disease.
3. Neither the polypoid swelling nor the polyps are factors in the bone involvement. This is simply a result of the chronic inflammation.
4. The changes in bone seem to take place more readily on the delicate walls of the ethmoid labyrinth than on the middle turbinate.
5. The inflammation can extend from one part of the membrane to another through the bone itself as well as through the openings in the same. It generally begins on the outer surface of the medial ethmoid wall.

Some authors have endeavored to show that polypi are always caused by an empyema of the ethmoid, but we believe that while these are frequently found together the polypi exist entirely independently of the empyema, in fact are frequently the cause of the latter. These polypi are simply the result of an inflammation of the mucous membrane, and are due primarily to the same causes which produced the general infection in the nasal mucous membrane.

The attendant watery discharge is not solely from the membrane over the ethmoid but from the entire nasal surface. It is true it is liable to

infection and may become purulent, thus giving rise to the idea that the polypi are the result of the suppuration, but in these very cases when the infection has subsided the discharge again takes on its watery character. Some will say that these are cases of so-called latent empyema where the patient has no trouble whatever for quite a while and suddenly through an infection or so-called cold, an exacerbation of the process takes place and we have an acute empyema on the base of a chronic one. These conditions, however, are entirely different, as in the empyema the patient is entirely free from symptoms during the periods of quiescence, and is troubled with secretion only during the stages of acute exacerbation, while in the case of the chronic ethmoiditis, non-suppurative, as we call it, the patient is never free from this discharge, only in the so-called latent periods, it is thin and watery in character. This is the form that Uffenorde describes under the name of hyperplastic ethmoiditis.

Skillern has conducted a series of experiments and demonstrated conclusively from a pathologic standpoint that this form of ethmoiditis occurs entirely distinct from the suppurative form.

Casselberry was evidently of this opinion regarding ethmoiditis when he described a simple edematous form as a forerunner of the suppurating and necrosing forms. However, in this case polypi were visible on examination, thus giving absolute evidence of the ethmoidal involvement. In the cases with which we have to do, frequently nothing can be detected but the thickened and edematous membrane on the side of the middle turbinate or ethmoidal wall, but in every one of our cases after infracting the middle turbinate and opening the ethmoid, it was found filled by a mass of polypi. He sums up his observations as follows: "The sequence of events would then be first, simple myxomatous ethmoiditis which may assume as a variation the type of vaso-motor ethmoiditis with asthma, then nasal polypus, and finally suppuration of the ethmoid cells and of the collateral sinuses, by obstruction to their outlets, either by distinct polyps or myxo-degenerated tissues."

The method of development of this condition is as follows: In the course of an acute rhinitis the entire mucous membrane of the nose is affected. However, as the general process subsides the membrane covering the ethmoid wall and the outer side of the middle turbinal, owing to poorer facilities for drainage and existing hypertrophies from former attacks, does not regain its normal character, but under the constant irritation of the secretions undergoes a sort of hyperplasia. This spreads over the wall of the ethmoid and eventually involves the ethmoidal cells themselves. These cases are often described as vaso-motor disturbances in the nose. By others are called manifestations of hay fever.

To the casual examiner nothing abnormal is to be seen in the nose except perhaps a somewhat soft and thick membrane on the edge of the middle turbinate. Because he can see no pus in the middle meatus or no polypi anywhere in the nose and because the chief subjective symptom

is a profuse watery discharge he excludes the idea of an ethmoiditis, and places the trouble under the blanket diagnosis of nervous excitability of the membrane or a vaso-motor disturbance.

SYMPTOMS

As a general rule the symptoms of a chronic ethmoiditis are not so pronounced as those of an inflammation of the maxillary or frontal sinus. Probably the most constant is the headache frequently described as a burning or boring pain at the base of the nose, between the eyes, or it may be supraorbital.

In some cases this may radiate toward the temporal region. It may closely simulate a supraorbital neuralgia. One case which came under my observation had suffered for twenty-two years with the most exquisite supraorbital neuralgia. He had consulted various rhinologists and been told there was no cause for it in the nose. He had even had the supraorbital nerve resected by a very eminent surgeon, but the so-called neuralgia persisted in spite of all this. After cleaning out the ethmoid fourteen months ago he was relieved and has had no trace of headache or neuralgia since. Frequently patients complain of a sense of fullness in the eye ball, pain on reading, spots in front of the eye, and especially increased tear secretion. Disturbance of the sense of smell is frequently complained of—the constant odor of burnt straw—or, on the other hand the sense of smell may be entirely lost.

Owing to the profuse secretion there is frequently an eczema around the edge of the nose. The secretion may be so increased that the patient will use half a dozen or more handkerchiefs a day, still there will be no stain on them as in the case of an empyema, the discharge being thin and watery.

Associated with ethmoiditis we frequently see asthma, pharyngitis, catarrhal affections of the middle ear and eustachian tube, chronic laryngitis, etc. Uffenorde reports a case where a patient was referred to him with suspected tuberculosis of the larynx. General nervous symptoms even to the extent of melancholia may be referable to an ethmoiditis.

Diagnosis.—If we bear in mind the normal anatomy of the ethmoid and the mucous membrane lining it, the diagnosis of this condition is not a difficult one. From the symptoms above given, if we are suspicious of an ethmoiditis, examine the middle turbinal and if possible the meatus, the bulla and uncinate process. If there are no signs of polypi touch the membrane on the outer wall of the turbinal. If it is thick and edematous it is almost pathognomonic of ethmoiditis. Should the turbinal lie closely against the outer wall so that it is impossible to examine the meatus, thoroughly cocainize the area and insert a Killian speculum into the meatus, spread the blades and fracture the middle turbinal at its base and deflect toward the septum.

We can now obtain a complete view of the meatus and ethmoidal wall, the bulla and infundibulum. Frequently a number of small polypi will be found in the meatus. Often the entire chain of symptoms, which before were absolutely unexplainable, such as pain in the eyes, increased

watery secretion, headache, tendency to sneeze, asthma, etc., find an easy explanation when the middle meatus is open to view.

One of my cases showed nothing on examination but the thickened and soft membrane on the outer surface of the middle turbinal. On fracturing the turbinal and obtaining access to the meatus a polyp could be seen on the ethmoid wall. On opening this wall I found the entire ethmoidal labyrinth replaced by large masses of polypi. These gave no evidence of their presence except by the subjective symptoms and it was only after the turbinal was pushed to one side that they could be detected.

Treatment.—Attention was called to the importance of this form of ethmoiditis by Casselberry, who, in a paper read before the American Laryngological Society in 1894 says:

"Polypus is commonly one of the earliest prominent manifestations of ethmoiditis and where present the case should not be dismissed with a simple snaring as adequate to the occasion, but should be viewed as at least suggestive of a developing disorder, which is liable to culminate seriously unless controlled."

If the disease has progressed to the state where we have polypi which are visible in the meatus and infundibulum I think it is not sufficient to remove them with the snare or forceps or even to cauterize the base, but we should look for and remove the cause. If the middle turbinal has undergone polypoid degeneration in its anterior portion I should by all means advise its removal, i. e., the anterior one-third and then with a Hajek hook open the bulla. We now make use of the Uffenorde double curette or biting forceps and step by step, cell by cell, remove so much of the ethmoidal labyrinth as is diseased. So soon as we reach normal structure we stop *but not until then.* If this method be followed and careful exploration with the bent sound be made constantly during the operation, no mishap will result. The danger in such operations lies in scraping around in the dark with a curette or spoon. If one does not remove anything or attack any cell without seeing just what he is doing there is no more danger in ethmoidal surgery than in that on the outer sinuses.

In the diagnosis of this condition I explained the infraction of the middle turbinal and I prefer in most cases to make this a step of the operation and not unnecessarily sacrifice any portion of this bone. Of course, where the structure is diseased it is not only unnecessary, but wholly inadvisable to retain it. But we have a great many cases where this is not the case and the only sign we can see on examination is the thickened membrane on its outer wall. In these cases I think it more logical, more conservative, and of greater benefit to the patient to conserve this turbinal and simply infract and thus gain all the space necessary to complete the operation, and when the cure has been effected the patient still has the turbinal intact.

I have operated on a series of cases in this manner with excellent results and am confident that had I used this method sooner I would have retained a great many middle turbinals that I formerly partially amputated.

As this paper has already assumed greater proportions than I had intended I shall not add a list of my cases, but simply a few conclusions.

1. We have a form of ethmoiditis which exists without suppuration.

2. There may be no signs of this on examination except the thickened membrane on the outer wall of the middle turbinal.

3. When this condition exists, together with subjective symptoms, it is an indication for opening into the ethmoid.

4. Unless diseased the middle turbinal should not be amputated, but infracted.

5. Removal of the contents of the ethmoid labyrinth should only be practiced under full vision with control of the nasal sound.

103 State Street.

DISCUSSION

Dr. Casselberry, in discussion, stated that he was impressed with the fact that in his old records there were a great many diagnoses grouped under the heads of rhinitis, hypertrophic rhinitis, atrophic rhinitis, which at present would come under the head of some nasal accessory sinus disease. He has come to the conclusion that nearly everything in the nose to-day is sinus disease, although not necessarily suppurative. He thinks this is but the logical thing to expect where there exists a series of cavities with small outlets frequently subject to infection. Why should the freely drained mucous membrane of the nose proper be blamed instead of these poorly drained accessory cavities?

One cannot dispute the existence of ethmoiditis without suppuration. These cases may terminate in suppuration. They are but the early stages and may continue indefinitely without suppuration. These conditions are exceedingly common and very disquieting to the patient. Especially marked is the tumefaction of the middle turbinate body. He does not agree with Dr. Marquis that a large number of those cases can be relieved without resection of a part of the middle turbinate. He believes that the value of saving every bit of membrane in the nose is largely a fancy. In his experience much of the membrane destroyed in operations is regenerated. In addition to the resection of part of the middle turbinate it is frequently necessary to resect a part of the septum.

Dr. Frank Brawley, in discussion, stated that the majority of these cases consulted an oculist instead of a rhinologist, and usually come with a pocket full of glasses, and after having had their eye muscles exercised, etc. The close relation between the internal recti muscles and the ethmoid leads to the involvement of these muscles. In the diagnosis the presence of edema on the outer wall of the middle meatus was of great importance. One should remove enough of the middle turbinate to get a view of the ethmoid cells. The great tendency to the development of edema of the membrane covering the ethmoid is probably due to poor circulation, both in the blood and lymph. In the use of the vacuum pump to draw secretions from the sinuses he has been able to produce experimentally the type of headache of which these patients complain. In one case where there was severe frontal headache, removing the anterior third of the middle turbinal and opening the bulla gave relief for a year, when the pains returned, and it was necessary to perform a thorough exenteration of the ethmoid before permanent results were obtained. There was no secretion in the ethmoid cells, but there was edematous mucous membrane simulating granulation tissue.

Dr. A. H. Andrews, in discussion, stated that considerable progress was being made in this work. There are non-purulent inflammations which are just as uncomfortable to the patients as an empyema. In a number of cases where he had tried to save the middle turbinal he had removed this later only to find that it was decidedly diseased. He thinks it extremely difficult to press the middle turbinal against the septum sufficiently to learn much of the condition of the ethmoid. If the granulations or polyps are well developed, these may be

seen. Only recently by pressing the middle turbinal over he was able to discover polypi beneath it in a case that had gone the rounds of the oculists without getting relief. Removal of part of the turbinated and part of the ethmoid has made the patient perfectly comfortable. The pain experienced in this case was in and about the eyes when reading. The relation between rhinology and ophthalmology is very close. He believes that many of these cases are not due to infection at all, but are the result of the swelling of the membrane which occludes the apertures. The absorption of air in the cells then brings about congestion and exudation and the further changes described by Dr. Marquis.

Dr. William L. Ballenger, in discussion, states that he does not believe that there is a hard-and-fast distinction between the suppurative and non-suppurative forms of ethmoiditis. He believes that all cases are suppurative. He has seen a large number of patients the last five years who had been previously examined by competent oculists where a hyperplastic type of inflammation exists. In some the suppuration was present without hyperplasia. It is impossible to get relief from the use of glasses. The cause of the trouble is in the ethmoid. He removes the entire ethmoid labyrinth because in its partial removal he has encountered difficulties. In these cases the mucous membrane would swell so as to occlude, and very often infection followed. This he has never seen occur after exenteration of the labyrinth. The safest operation he believes is the complete exenteration. He has had one death where he believed the patient had a pre-existing meningitis, the nasal operation serving to incite the old trouble, the patient dying in a few days. The danger in operating in the ethmoid region is in partial work, not in complete exenteration. In cases where the hyperplastic changes are not marked, it may not be necessary to do a complete removal. Like Dr. Casselberry, he rarely makes a diagnosis of rhinitis of any type, since these cases are always of accessory sinus origin.

Dr. J. C. Beck, in discussion, stated that the histologic picture showed a difference of the two types—suppurative and the non-suppurative. The stroma of a polyp is fine in texture, the myxomatous tissue is clear. There are a few inflammatory cells. The epithelium in the non-suppurative type is well preserved; in the suppurative type it is multiplied and piled up. In the suppurative the texture of the polyp is denser than in the non-suppurative type. When the ethmoid bone is examined it appears different in the non-suppurative than in the suppurative process; in the latter there is ostitis and necrosis; in the former there is thickening of the bone, but no inflammatory change. He believes the entire removal of the middle turbinal is indicated.

Dr. George E. Shambaugh said that he could not agree with Dr. Ballenger that the chief danger in operations on the ethmoid labyrinth lay in the leaving of some of the cells. Meningitis occurs not from extension through the roof of the ethmoid labyrinth, but by way of the cribriform plate which lies to the mesial side of the ethmoid cells. Meningitis follows operation on the ethmoid either because the operator has disregarded the cribriform plate which is much more delicate than the roof of the labyrinth, and has broken through this plate, or because infection extends along the sheaths of the olfactory nerves or along the blood-vessel and lymphangitic communication between the olfactory region in the nose and the meninges. Every effort should therefore be made to avoid injuring that part of the meatus nasi communis which contains the distribution of the olfactory nerve. This is the upper part of the septum and the plate that forms the median wall of the ethmoid labyrinth. If it is possible, as it will be in some cases, to force the middle turbinated body against the septum and leave it standing while the ethmoid cells are freely opened, the chief danger of the operation, that of injuring the cribriform plate or the part of the membrane containing the distribution of the olfactory nerves, will be avoided. In cases where the middle turbinate has to be removed, which is the more usual situation, this should be done with cutting and not tearing instruments. In the subsequent cleaning out of the ethmoid labyrinth the operator should leave the median plate standing.

Dr. Marquis, in closing, stated that when the middle turbinate was involved in the disease process it should always be removed. This was usually the case in the suppurative type. In the hyperplastic type of ethmoiditis without suppuration, where the ethmoid cells are filled with polypi and the middle turbinate not involved, infraction of this body against the septum and the cleaning out of the ethmoid cells is all that is called for. Some of the non-suppurative cases may really suppurate at times, but there are other types where suppuration never occurs. There may be discharge, but it is thin and watery.

A case of thrombosis of the cavernous sinus with the post-mortem findings was reported by Dr. William L. Ballenger. The diagnosis was based on the presence of the characteristic exophthalmus associated with the usual septic symptoms of thrombosis. Post mortem revealed no focus of infection that could be recognized as such in the nose. There was an ulcerated lower molar tooth found which Dr. Ballenger held responsible for the thrombosis of the cavernous sinus.

Dr. George E. Shambaugh was unable to see any reason for attributing the thrombosis of the cavernous sinus to the presence of a decayed lower maxillary tooth. The direct extension of infection from the nasal mucous membrane by the way of blood-vessel and lymphatic communication is much more plausible. He referred to a case of primary thrombosis of the cavernous sinus which he had reported at the last meeting of this society, where the post-mortem examination failed to discover any primary focus of infection elsewhere and where the conclusion reached was that the infection had gained entrance to the cerebral cavity by means of blood-vessel and lymphatic communication between the nasal mucosa and the structures at the base of the brain.

Dr. J. R. Fletcher exhibited the forceps described at the previous meeting used for removing bone in various head operations.

AN UNUSUAL CASE OF COMBINED EXTRA- AND INTRA-UTERINE PREGNANCY.

C. D. CENTER, M.D.
QUINCY

Cases of ectopic pregnancy are common; cases of successful operations for ectopic pregnancy are of every-day occurrence. Cases of laparotomy with a pregnant uterus, the pregnancy going undisturbed, are not unusual. Cases of an extra-uterine pregnancy with an intercurrent intra-uterine pregnancy are on record, but the following report is of such an unusual nature that I feel justified in relating it to you, thereby getting it in print to help build one of those towers of statistics which are so valuable, not only to us, but to those who may come after us.

On April 15, 1910, Mrs. O., aged 37 years, married 11 years, and never pregnant, was seized with abdominal pain. This pain was accompanied with profound constitutional disturbance, pallor, weak pulse, sighing respiration, and the doctor in attendance, who was unable to make a diagnosis, believed that his patient was about to die.

On May 6, three weeks after the initial attack, the patient came to Quincy and came under my care. She was then very pale, pulse above 100, no temperature, nausea and vomiting, greatly distended abdomen, but very little pain or tenderness anywhere. A vaginal examination revealed a mass in and about the left broad ligaments, and a somewhat

enlarged uterus. From the findings, and from the history of the case, it became apparent that the case was surgical. There was one misleading feature for me, *i. e.*, that the patient said that she had had her menstrual flow normally and regularly. Laparotomy was done the next morning. The abdominal cavity was filled with dark decomposing blood, and a ruptured tube on the left side with fetal remains and decidua made the diagnosis clear. The fundus was soft and enlarged, a condition not unexpected, but it had more of the feel of a pregnant uterus than seemed usual. After removing the source of trouble on the left side, by tying off and amputating the left tube and ovary, I turned my attention to the right side. Here was an ovary so thoroughly disorganized by cystic degeneration that it seemed folly to leave it as a possible source of future trouble, and moreover the patient had instructed me to remove everything that was making or was likely to make trouble, so this tube and ovary was treated the same as the one on the opposite side. Recovery was uneventful except for two symptoms. There was not the usual flow which is expected after a removal of tubes and ovaries, and there was no expulsion of uterine decidua. The patient continued to complain of nausea, although there was no vomiting. She left the hospital in 20 days. One month after the operation, as nausea still persisted, I made a vaginal examination, and was mildly astonished to find the uterus apparently larger than before the operation. The patient then was told of the possibility of there being an intra-uterine pregnancy, and advised regarding the care of herself in the event that this should be the case. In 30 days more another examination convinced me beyond a doubt that she was pregnant, and December 25 she was successfully delivered of an 8-lb. girl baby. The delivery was instrumental. The placenta was delivered by compression. For about two hours uterine contraction was very poor and the flow rather profuse, although not alarming. From this time until January 1, she went on uneventfully, and on January 1, while on the bedpan she passed from the uterus the long lost decidua. It may be thought that this was the portion of the placenta, which had been torn from the mass, but there are two reasons advanced why this is not so. First, I examined the placenta carefully after it was delivered, fearing just such an occurrence, as it had remained in the uterus rather obstinately, and found that all had come away. Second, the nurse in attendance was the first person to discover this decidua, and she in telling me remarked "but it isn't placenta."

I have not had time to look up this class of cases in literature, so can not say just how rare it is to have a case of extra- and intra-uterine pregnancy at the same time, with rupture of the extra-uterine, with laparotomy and removal of the extra-uterine pregnancy, and both tubes and both ovaries, and have the intra-uterine gestation proceed undisturbed. But I am convinced that these cases are so unusual as to be in the nature of curiosities.

UTERINE MYOMATA AND PARTURITION *

CHARLES E. PADDOCK, M.D.
CHICAGO

Uterine myomata are usually interstitial in the beginning and become either submucous or subperitoneal, as the case may be. Should the tumor pass to the outer surface, it may remain attached by a broad base and become what is called a sessile tumor or take a pedunculated form with a narrow base. The surface of the uterus may be thickly studded with smooth spherical tumors, or one large one may rise from the surface, forming numerous nodules or a mulberry appearance. The pedicle of the pedunculated form is composed of uterine muscle tissue, which closes the vessels, furnishing blood supply to the uterus. We may also have a variety of tumor known as the intraligamentous, where the tumor pushes up between the folds of the broad ligament. There may be but one tumor, and there may be many, and frequently cut sections show the uterus completely studded with them. The blood supply is derived from the uterine muscles, but later some varieties may become parasitic, receiving the blood supply from surrounding tissue, such as omentum, Fallopian tube, and so forth.

The uterus is enlarged because of these tumors, the change simulating that of the gravid uterus, this enlargement disappearing after a myomectomy has been done, followed by perfect involution.

With these few facts before us we will consider these tumors in relation to pregnancy, labor and the puerperium. Medical literature furnishes us many reports of cases of fibromata complicating the pregnant uterus, and it may be well to enumerate the dangers attributed to their association. Among the dangers given we will mention the following few:

1. The tumors may increase in size, and frequently they do.

2. Placenta prævia may result.

3. Adhesions may fix the uterus in the pelvic cavity and cause an incarcerated gravid myomatous uterus.

4. Prolapse of the cord is frequent.

5. Malpresentations and malpositions of the fetus and interference with the mechanism of labor. Lafour found that 49 per cent. showed abnormal presentations. Olshausen says that the presentation in his cases was 53 per cent. vertex, 24 per cent. breech, and 19 per cent. transverse.

6. It is said that the fibroid may press on the Fallopian tubes so that ectopic pregnancy may result.

7. Post-partum hemorrhage due to the contractions of the uterus or inertia uteri sometimes occurs.

8. Pedunculated tumor may become encysted and peritonitis ensue.

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* Read before the Chicago Medical Society, Oct. 26, 1910.

9. Pressure symptoms causing varicose veins and swelling of the lower extremities are also to be taken into consideration.

When we consider the number of women having fibroids and also the large number who have gone through pregnancy with these fibroids, and still suffer no inconvenience, we wonder if there is so much danger after all.

It might be fitting to the subject to allude briefly to the effect of myomata on fertility. Hofmeier says that rarely does a woman who has borne children come to him because of fibroids. Occasionally, however, he is consulted because of the pregnancy and a fibroid is found. Virchow says he rarely holds a post-mortem on a spinster that he does not find a myoma uteri, and rarely does he have a post-mortem on a patient who has borne children that he finds a myoma. Pathologists generally agree that the unmarried and sterile married and those with but one child are particularly disposed to fibroid growths. There can be two interpretations placed on these statements. First, that the sterility is due to the fibroid, and, second, that the fibroids are due to the sterility. Virchow's statement would lead us to the conclusion that the latter is the case, and this is the opinion of Hofmeier. Kelly and Cullen[1] furnish a series of cases on the subject, as follows: 1,149 cases; number of married, 842; single, 307. All were married before forty years of age; 584 of these were sterile; 75 had miscarriages, but no full-term birth; 490 had children. Number of married, 842. Of the sterile patients, 295 were married.

Commenting on the above facts, the author says that in myoma cases the appendages are adherent in a large percentage of cases, and as this in itself would account for the sterility, we are still unable to say with any degree of certainty that the myoma *per se* was the direct cause of the sterility.

Fibroids, according to these authors, favor adhesions, and in over one-half of their cases, either one or both tubes were found bound down by these adhesions. One might question the conclusion that these adhesions are due to the tumors, the claim being that the friction caused them. It is not certain how many of these were fibroids, but surely these statistics would go to show that pregnancy and fibromata were incompatible. In the face of this, however, we have the opinions of Hofmeier and the conclusions of Virchow, which are almost indisputable.

In considering the effect of myoma on pregnancy, the location and size of the tumor is of great importance. A small subperitoneal tumor would not be likely to cause dystocia, but a small submucous one might not only prevent conception, but if pregnancy did occur might lead to serious results. An interstitial myoma or a sessile one, situated low down in the pelvis, would be more likely to interfere with pregnancy and labor than the same tumor in the fundus. The fact that once in a while serious complication arises, where tumors complicate pregnancy, has, I believe, resulted in causing an unwarranted uneasiness on the part of many physicians whenever a tumor is found to exist. The writer has

1. Kelly and Cullen: "Myomata of the Uterus," 1909.

frequently been consulted because of the presence of a tumor situated where there was no chance of its causing unfavorable symptoms, and found the physician and the family unnecessarily alarmed. A careful inquiry showed that the case resulted normally.

Abortions are more frequent in the second or third month, the same as in ordinary cases. The larger the tumor, the greater, it is said, is the tendency to miscarriage. Pressure symptoms are frequently present to an alarming degree, and it would seem that there might be a greater tendency to abortion at such a time. This pressure, however, can frequently be overcome by rest, diet, elimination, and proper support, and operative procedures or abortion thwarted.

Parvin claims that the average normal sterility is one to eight, while the sterility in married women having myomata is one to three. Hofmeier presents statistics from his private and clinic patients at Wurzburg, as follows: Of 2,795 private married patients, 447 were sterile, or 17 per cent. Of 5,462 clinic patients, 441 were sterile, 8 per cent. Out of approximately 8,000 cases, 11 per cent. were primarily sterile.

Kerr[2] shows how few operations are necessary in his clinic. The cases certainly must have contained a number of fibroid tumors. Still, out of 35,000 deliveries during six years at the Glasgow Maternity, laparotomy for any cause was done only three times.

Spencer[3] says that in fourteen years at the University College Hospital there were 35,000 cases of labor, and laparotomy and removal of the uterus was only required once.

Pinard, from 1895 to 1901, inclusive, furnishes reports of 14,000 cases. There were myomata in 84; 66 of these went to term, 13 were prematurely delivered, and 5 aborted. In only 4 was it necessary to interfere with pregnancy.

Tumors that at first seem to be so situated that the blocking of the inlet seems certain were later drawn up out of the pelvis either in pregnancy or labor. Again, a large interstitial tumor may become so flattened and disguised by pregnancy that it would be impossible to correctly diagnose it. Such a case was attended by the writer within the past few days.

CASE 1.—Mrs. L., i-para, aged 24 years, seen by the writer for the first time in labor. Position of child, occipito-left anterior. The head engaged, but the fundus high. A distinct sulcus on either side of the abdomen on a line with the umbilicus between pains. During pain this sulcus disappeared, due to the distention of the thinned out uterus at this point. With the head upon the perineum and the pains continuing regularly but rather short, the fundus still remained high. Delivery was terminated because of impending asphyxia of the child, the heart tones becoming about 180. The child was born in asphyxia pallida, covered with meconium and sphincters relaxed. Easily, however, resuscitated. The placenta was delivered by the Credé in ten minutes. Uterus high and hard, but no hemorrhage. Twenty-four hours later the fundus was found about two fingers above the umbilicus, hard and round, and a diagnosis was made of a large myoma (interstitial) of the uterus.

2. Kerr: Operative Midwifery, 1909.
3. Spencer: London Obstetrical Trans., xlviii.

The clinical picture here presented should probably have léd us to a proper diagnosis before delivery. Whether the tumor had anything to do with the asphyxia or not, we are unable to say.

Pressure symptoms are the most serious complications in pregnancy. In some cases even the greatest pressure will not be noticed while in others the slightest pressure will cause all kinds of trouble. Tumors pressing on the bladder or on the rectum and on the diaphragm may become so serious as to demand immediate attention.

A pedunculated fibroid, by pressure, may cause premature labor, or it may become twisted, with resulting peritonitis. A case came into the practice of the writer answering this description.

CASE 2.—Mrs. H., colored, aged 38 years, ii-para. In labor at seven months of pregnancy. Rest and opiates stopped the contractions. At intervals for the following week labor would ensue, but it was controlled again by opiates. A tumor corresponding to the size of the child's head was found located in the abdomen and probably attached to the fundus uteri, quite tender upon pressure. A laparotomy was done for removal of the tumor, hoping to be able to continue the pregnancy to term. The tumor was found attached to the fundus by a narrow base and long pedicle, considerably twisted and presenting evidence of degeneration. This tumor was removed and being attached directly over the placental site it was impossible to control the hemorrhage. The uterus was opened and a premature living child removed. The vaginal hysterectomy was then done and other tumors found posteriorly in the uterus.

It would make this paper too long and neither would it be of any interest to dwell on the number of bad effects which these tumors might have on pregnancy. Suffice it to say that anyone having a large practice will occasionally encounter a case where pregnancy must either be interrupted or is interrupted because of such a tumor.

Whether the placenta is situated under the tumor or not, or whether placenta prævia is sometimes caused by these tumors, is a question difficult of solution. The number of cases which have come under the supervision of the writer does not lead him to believe that post-partum hemorrhage is frequent. Olshausen[4] says that implantation of the placenta under this tumor is more than a coincidence, owing to its frequency; on the other hand, Wertheim doubts it, and quotes the case of Schwarzenbach, where that portion of the placenta over the tumor was very poorly developed.

Puppel[5] reports a case where the placenta was so adherent to a fibroid that the uterus had to be removed. Here, again, we question the cause assigned to this condition, as frequently we find adherent placentas where fibroids are not present.

Sacculation of the uterus is another condition not before mentioned, which might also call for interference.

The frequency of fibromata complicating pregnancy is very difficult to ascertain. The reason of this is due partly to the fact that different operators place a different value on these tumors. Where one would report the smallest tumor which could be palpated, another would only report those of a serious nature and liable to cause complications.

4. Olshausen: Winckel's Handbook, Vol. II.
5. Puppel: Deutsch. med. Wchnschr., Dec. 17, 1903.

The general opinion is that myomata grow rapidly during pregnancy, and this is borne out by clinical evidence. On the other hand, it is not unusual to find a large interstitial variety so altered in shape, or, rather, become so absorbed in the uterine wall, that it is with difficulty outlined. This increase in the size of the tumor is principally due to edema, and the growth seems to be more especially with the interstitial variety.

Bland-Sutton[6] published a paper entitled "The Inimicality of Pregnancy to Uterine Fibroids." This paper caused no end of discussion, and coming from such a well-known authority, the statements which he put forward were accepted and acted on. This resulted in the wholesale removal of pregnant uteri, of myomectomies, both for single and multiple, even dissecting the uterus to the point of exposing the decidua. This, of course, led to the termination of many pregnancies which would have undoubtedly been successfully terminated by normal labor. Fortunately, the tide has turned and conservatism in the treatment of these cases is the rule. He claimed that degeneration of the fibroid during and as a result of pregnancy is a common occurrence. Pain and tenderness go hand in hand with this condition. This degeneration is known as red degeneration. It is true that pain often accompanies these tumors during the pregnancy, and just why the writer is unable to say, and as yet he has failed to operate on such a case, unless as in the case mentioned above.

Pinard solved the problem when he said, in discussing a report of two cases that were operated on because of extreme pain, and no degeneration found, that had the patient been placed in bed with complete rest, with a proper diet and good elimination, the case could have been held along to term.

In delivery, tumors situated low down in the uterus are no doubt frequently injured. The submucous fibroids may also cause a great deal of trouble at this time. It is said not to be unusual for a tumor which has been severely pressed on in delivery, or which has been injured in delivery, to be followed by infection and serious consequences. Cases are on record where submucous fibroids have presented in front of the head of the child and been mistaken for the latter; also where following delivery a sloughing submucous fibroid has presented at the external os. These cases are, however, rare, but must be mentioned as liable to occur.

The diagnosis of fibroids complicating pregnancy is not always so easy, and when we read the reports of cases operated on for fibroma by our leading surgeons, and the case found to be one of a normal pregnancy or *vice versa,* we are surprised at the few mistakes made by those less skilled. Even though the abdomen be opened, it is sometimes difficult to state whether pregnancy will be found complicating the fibroid. Those cases where we have the signs of pregnancy, with the tumor situated in a favorable locality, there can be, of course, no doubt as to the diagnosis, but in one situated and seen late in pregnancy, as the one quoted above, there might be some excuse for a mistake. In the early months of pregnancy a few days more or less can well be taken. A gravid uterus grows

6. Bland-Sutton: "Essays on Hysterectomy," 1904.

rapidly. It were better to wait as long as there are no unfavorable symptoms, and clear up the diagnosis before giving advice as to the course of treatment to be pursued.

The results following myomectomy in pregnancy are not as satisfactory under all conditions, and still frequently it seems the best thing to do. The ease with which the tumor can be shelled out is remarkable. If the tumor be so large that it is causing pressure symptoms, the incision must of necessity be so great that danger of rupture of the uterus following such an operation is a serious consideration. Then, again, the danger of hemorrhage during or following the operation, after the abdomen is closed, is to be considered. It would seem to be the wiser procedure if it is necessary, because of the location of the tumor, during pregnancy, unless it might be the pedunculated variety, that the uterus be either removed or pregnancy terminated. Rarely are these tumors single, and the removal of one tumor is not necessarily going to assist our patient. Tumors blocking the pelvis in early pregnancy do not necessarily mean that this pregnancy should be terminated. In skilled hands there is but little, if any, more risk to the patient to let the pregnancy continue until term, and then perform whatever operation seems best. Of course, bearing in mind all this time the pressure symptoms which might ensue on adjacent organs. A uterus thickly studded with myomata and pregnant should be removed when diagnosed. It is in this class of cases that we get abortions; it is impossible for us to expect a living child under such a condition.

What the writer wishes to emphasize is that myomectomies in pregnancy should be few; that fibroids of the uterus, especially those found in the fundus, do not influence pregnancy unfavorably, and unless they are so doing the pregnancy should be allowed to continue. Wherever a large fibroid exists, whether it be of the interstitial variety or subperitoneal variety, the principal danger would be in the delivery, and such could be anticipated. Post-partum hemorrhage might be so great as to become uncontrollable; cases are on record where following delivery it was necessary to remove the uterus. Consequently, in all such cases this fact should be borne in mind, and before delivery the case should be taken to a hospital where the best of attention can be given.

SURGERY OF THE PLEURA *

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ELGIN

Mr. President and members of the Elgin Physicians' Club: The subject given me for to-night, "Surgery of the Pleura," dates back to the fourth century B. C., when Hippocrates wrote on pneumonic abscesses, and his opening them through the chest wall, sometimes resecting a rib. However this may be, the progress in this branch has been intermittent

* Read before the Elgin Physicians' Club, Oct. 3, 1910.

and slow up to a decade or two ago in comparison with other lines of surgery.

Let me call your attention to one or two essential points in the anatomy of the pleura. Under normal conditions visceral and parietal pleuræ are in close contact, the inner surface of the pleura being smooth and polished and moistened by a serous fluid. In health it is usually impossible to separate the pleura from its attachments to the rib without opening the cavity, but in disease we frequently find the pleura much thickened and that we can easily pull it off from the ribs without danger.

The pleura mediastinalis is attached intimately to the esophagus, trachea, pericardium, vagus nerves, innominate artery, superior vena cava, etc., the attachments being about the same on both sides. It requires a careful dissection to separate it from the structures named above. Dr. Murphy calls our attention to the attachment to the innominate vein and subclavian artery, which must be remembered in pneumectomy for apical disease, as adhesions so often exist. Also adhesions at this point frequently produce paralysis of the abductor muscles of the vocal cord on that side with symptoms of laryngeal paralysis.

The sternal attachment recedes gradually from the center on the right side to the lower margin of the fifth space. On the left side it recedes quite abruptly from the fourth rib, thereby exposing the pericardium in the fifth space immediately to the left of the sternum. It is at this point that the pericardium may be opened without injury to the pleura.

We must not lose sight of one fact, and that is that the pleura reacts readily and rapidly to irritants, but is not so active in reproduction and reconstruction as is the peritoneum.

It is difficult to find much in the literature on traumatic injuries of the pleura, but it is my opinion that injuries of the pleura are much more serious than is commonly believed to be the case, as, for example:

Case 1.—J. W., aged 54 years, was injured by being pinched between two cars. He had two ribs fractured on the right side; the lung was not punctured as far as I could ascertain, but there was great shock and depression and acute pain on the right side in the region of the seventh and eighth ribs. The ribs were easily brought into place by straps. There was no cough. On the third day an effusion developed. On the fourth day the dyspnea, rapid pulse, temperature, and pain began to subside, but were immediately intensified if he endeavored to turn over or move in any way. In fact, every one thought him improving when on the morning of the ninth day he tried to sit up, but the dyspnea increased, cyanosis was marked, he became unconscious, and died within five minutes in spite of the stimulants administered. No post-mortem was allowed.

Case 2.—A. C., aged 32 years; farmer. While running a gasoline engine he was caught in the machinery and thrown several feet. A plank struck him in the right chest. The injury was not considered of a very serious nature until the second day. At this time dyspnea and cyanosis were marked, with extreme discomfort and acute pain in the right chest. I saw him at this time in consultation, and found he had fractured the eighth and ninth ribs in the anterior axillary line. An effusion had doubtless developed in this region, as there was marked dulness and loss of respiratory sounds. His pulse was 150, and small, with a temperature ranging between 101 and 103; respiration 60. He was brought to the hospital, where we put him at rest. For a week he remained in a dangerous

and precarious condition, we being very much in doubt as to his recovery. On the seventh day I aspirated about three ounces of bloody fluid. His temperature, dyspnea, and cyanosis gradually subsided, but there was acute pain if he attempted to move. After the second week he began to show signs of improvement, and from this time he made a slow recovery, the dulness of the right side becoming less and less each day. He was discharged at the end of the fourth week.

If my time were not limited, I could cite you a number of cases bringing out the fact that injuries to the pleura are of more serious and dangerous import than most men believe; also that the pleura is exceedingly slow in absorption and reconstruction.

Thus cases of traumatic injury must be put at rest and treated expectantly, dealing with conditions as they arise. Following trauma, we may have develop such conditions as pneumothorax, hydrothorax, hemothorax, chylothorax, or empyema. These conditions I shall discuss separately and briefly, with the exception of the last.

Pneumothorax is usually due to a penetrating wound of the chest wall or perforation of the lung. If caused by a wound in the chest wall which has been quickly sealed, there is a slight increase in the frequency and depth of the respiration, which is increased on exertion. Should the wound be open enough to allow air to be drawn in and forced out with each respiratory effort, we shall notice there is extreme discomfort, marked dyspnea and cyanosis, and symptoms in general will be greatly increased. If, also, there is impaired function of the other lung, the respiration may become alarming and suffocation ensue.

If there is no external wound, and little or no dyspnea, a moderate amount of air will usually be absorbed. If, however, the dyspnea is severe, it is best to aspirate, which usually affords great relief. On the other hand, if the condition is caused by an external wound, the indications are to close the wound as quickly and as completely as possible. Where it is believed that the pleura is not infected, the wound should be thoroughly cleansed and sutured and aseptic dressings applied when the dyspnea is severe, otherwise drainage should be established. In alarming cases, it has been recommended to suture the lung to the parietal pleura.

Ehrmann, as stated by Brewer, in a case of pneumothorax and progressive cutaneous emphysema from subparietal rupture of the lung, opened the chest and introduced a firm rubber drainage tube, to the external extremity of which was attached a smaller collapsible rubber tube. He then hermetically closed the wound in the thorax around the larger tube. He found that air was expelled from the parietal cavity by the expiratory effort, but during the inspiration the small tube collapsed, preventing air from entering. This device proved successful, and the case recovered.

Hydrothorax as a rule is of purely medical interest, but it may result from such conditions as injury to the pleura or lung, and occasionally we see it following a subphrenic abscess. In uninfected cases the fluid is clear, straw-colored, or greenish in appearance, contains a few leukocytes, and some albumin. In infected cases we find certain bacteria, more leukocytes and albumin. The difference between an exudate of this kind and the pus in empyema is one of degree only. Medical treat-

ment usually is sufficient, but when this fails, we must resort to aspiration. If the fluid reaccumulates, we must resort to repeated aspirations. Cases have been reported where it has been necessary to introduce permanent drainage or even do a thoracoplastic operation. Of late some very good results have been obtained from autoserotherapy, which I shall discuss more in detail later. We must not fail to keep in mind the underlying cause which must receive proper and necessary treatment.

Hemothorax interests the surgeon as a rule only as a result of trauma. There are often no external signs, so the diagnosis must be made from symptoms of internal hemorrhage combined with signs of fluid in the pleural cavity. The treatment is absolute rest and morphin sufficient to prevent cough; straps or a binder to diminish the respiratory movements; and the application of ice. If it is believed that the bleeding point is in the chest wall, it is best to make a free incision and secure the same by ligature. In desperate cases where it is thought the bleeding comes from the lung, it may be necessary to open through the chest wall, causing an artificial pneumothorax and the lung to collapse, thus controlling or suppressing the hemorrhage. Where there is continued bleeding and a reasonable hope of success, Brewer advises opening the chest and securing the bleeding point by means of ligature, suture, cauterization, or a firm gauze pack. He also says that it has been demonstrated experimentally that it is a safe procedure to secure the bleeding point of the lung by large mass ligatures and return to the pleural cavity. In addition we must of course raise the foot of the bed, make use of normal salt solutions and other stimulants, as may be deemed necessary.

Chylothorax results from injury to the thoracic duct, caused by a fracture of the spine or a malignant or suppurating disease of the duct walls. In trauma this condition is doubtless frequently overlooked because of other more grave and serious symptoms which the injury has produced. The symptoms are those of gradually increasing fluid in the pleural cavity and the progressive loss of strength and weight. A positive diagnosis can only be made by the exploring needle although it must be remembered that fluid found in the chest in some forms of malignant disease resembles chyle. The treatment is unsatisfactory, as a radical operation for closure of the wound is absolutely out of the question. Aspiration is all we can do, but repeated aspirations have been followed by a cure.

We now come to that subject which has been of the most interest not alone to the surgeon, but to the internist as well. More work both clinically and experimentally has been done on empyema than any other condition in the chest.

Empyema, or pus in the pleural cavity, may be caused primarily by infection through an external wound or by bacteria being conveyed to the pleura through the blood stream. Secondarily it is caused by infection reaching it from some neighboring focus such as a pneumonia or abscess of the lung, subphrenic abscess, mediastinal disease, or some focus in the chest wall. As mentioned above, most cases of empyema except those resulting from infection through an external wound, start

with a clear straw-colored exudate, but as the disease progresses, the leukocytes increase and the fluid becomes more cloudy and finally pus is formed. The pus produced by the pneumococcus is thick and creamy and yellowish or greenish in color. Foul smelling pus is usually due to the colon bacillus. In streptococcus infection we find a thin watery and flaky pus, and in tuberculous empyema a thin and watery pus often containing caseous material. Rarely, chronic empyema may be caused by actinomycosis or one of the streptothrix group. The pleura is always thickened and covered with a more or less extensive fibrinous exudate. The pus is frequently divided into two layers, the lower of thick pus, while the upper may be clear and watery.

Localized empyema walled off by adhesions are not uncommon; interlobar empyema following pneumonia, and an empyema between the diaphragm and the base of the lung resulting from some abdominal focus. I shall not dwell on the symptoms which are largely those of pleural effusion with compressed lung and septicemia. But let me call your attention to the fact that in children a large effusion often gives the physical signs of consolidation of the lung.

As regards the diagnosis, I cannot lay too much stress on the differentiation between empyema and cholecystitis or appendicitis. Twice in years gone by I have had brought to me cases which I operated for cholecystitis and a week or ten days later I have drained the pleural cavity for empyema, thus relieving the patient of those symptoms which I had thought were caused by a gall-bladder infection. I find that many of our foremost American surgeons have had the same experience at some time, so let us beware. To-day and for some time past I have used a long exploring needle not once only, but if necessary over and over again until I have been absolutely certain of my diagnosis. We are aided to-day by the *x*-ray and skiagraph, and more recently still by the stereoradiograph brought to our attention by Dr. Emil Beck of Chicago.

The prognosis of course depends on several factors, such as the character of the infection and the degree of toxemia and prostration already present from the primary disease. A tuberculous empyema gives a bad prognosis. Rarely cases die suddenly. I had one a few years ago.

Case 3.—J. W. H., aged 34 years, farmer, came to me suffering from a typical severe cholecystitis. He was brought to the hospital, where I operated on him. There was some leakage around the gall-bladder, and a subphrenic abscess developed, followed by an empyema which I drained fourteen days after the primary operation. On the third day following the drainage, he was much improved and spent the afternoon talking with his father. The father had not been gone from the hospital twenty minutes when the patient had a seemingly epileptic convulsion and died within an hour, never regaining consciousness.

I have never been able to satisfy myself as to the cause of this sudden death, but I find Osler says:

"Faintness is not uncommon. Epileptic convulsions may occur either during the withdrawal or while irrigating the pleura. I have seen but a single instance. They are very difficult to explain and are regarded by most authors as of reflex origin; and lastly sudden death may occur from syncope or during the convulsion."

I shall consider first non-tuberculous empyema. While there have been a few cases recorded that have recovered either by absorption or spontaneous rupture, the only fast rule to follow is that of operation unless of course the patient is in an actually dying condition. I believe it is best in these last mentioned cases to open the chest at the house. For a number of years ago I had an experience in this line which proved entirely unsatisfactory. I was called in the night eight miles in the country to see a case of a man who had been sick three months with empyema following pneumonia which had been diagnosed consumption. I advised that the man be brought to the hospital the next morning, and that we would operate on his arrival. When being prepared for the operation the abscess broke into the bronchi, which caused him to nearly suffocate. Believing that he would rally from this, the operation was postponed. On the second day he developed a septic aspiration pneumonia and died the following day without operation. I believe if this case had been operated on at the home and later removed to the hospital for a secondary operation if such had become necessary, that the case would have recovered.

It is largely a matter of the surgeon's choice or judgment which operation he does, and whether he uses a Wilson drainage-tube, a simple rubber-tube, or a few strands of silkworm gut. In children it has been my experience that a simple drainage under local anesthesia has usually been sufficient, the wound closing in from three to four weeks. As soon as I have made my opening, I get my drainage-tube in and my aseptic dressings over the wound as quickly as possible so that the fluid will escape slowly. In large cases of effusion I usually open between the sixth and seventh or the seventh and eighth ribs in the mid or posterior axillary line. Of course, in cases of a circumscribed abscess, the opening must be made over the same. In adults I have obtained quicker and more satisfactory results by giving a general anesthesia where such is possible and making a drainage by resection, for I have found that a resection usually had to be done later in those cases where I used a simple drainage.

Aspiration had given entirely unsatisfactory results until Dr. Murphy began the use of his 2 per cent. solution of formalin in glycerin following aspiration. In a recent communication from Dr. Murphy he says:

"I am treating all my cases of empyema, that do not communicate with the bronchus or that have no external communication through the chest wall, with injection of one or two ounces of a 2 per cent. solution of formalin and glycerin after aspirating as much pus as will come out. This is repeated every week until the pus has changed to a sero-sanguineous and finally a serous fluid. Absorption and recovery follow."

In cases where the asepsis has been perfect throughout, it is very rare to have a sinus develop. These sinuses are best treated in my judgment by the use of Beck's bismuth paste. I have had some experience in this line, but my series is not large enough so that I may draw any definite conclusions. In those cases in which I have used it I have had perfect success and satisfaction. In these cases I started with formula No. 1

consisting of one part arsenic-free subnitrate of bismuth, which I have injected every other day until the suppuration had almost disappeared, when I commenced with formula No. 2 consisting of 30 parts of bismuth, 60 parts of pure amber-vaselin, and 10 parts of paraffin hard enough to give the paste some firmness at body temperature. It is possible in this treatment to get a bismuth poison which has largely the symptoms of mercurial poison. Should this develop, Dr. Beck has advised the injection of warm olive oil, which will make an emulsion in a short time. This emulsion should be drawn off at the end of twenty-four hours.

Where operation has been delayed, we often find a chronic suppurating cavity which cannot be obliterated. These cases often lead to chronic sepsis with progressive anemia, cirrhotic changes in the lung, and amyloid changes in the other organs. As the cirrhotic and collapsed lung cannot expand, some measures must be adopted to bring the chest wall and the lung in close approximation. For these conditions the operation of Estlander has been recommended, and when this fails, do the more radical operation of Schede. Most of you present here to-night will undoubtedly remember when Dr. Ferguson of Chicago demonstrated to us here his first case of this kind, which was the first Schede operation performed in this country. In my judgment these last two operations will not be done as often in the future as they have been in the past because of the results obtained by the use of bismuth paste. Dr. Emil Beck only recently reported a case where he resected a few ribs for a chronic incapsulated abscess and injected immediately into the cavity a paste containing 5 per cent. bismuth in vaselin. He said that on the second day there was a serous discharge; he injected bismuth paste twice again, and at the end of the first week all that was exuding from the wound was a little vaselin, and that the wound closed completely at the end of the second week.

If operation has been performed at an early period in the disease, the lung usually expands readily as soon as the suppuration has ceased, but in those cases where operation has been delayed and the lung is collapsed, it is best during convalescence to have the patients increase their intratracheal pressure by the use of the Wolf bottles, thus causing the lung to expand. They should blow into these bottles, in my judgment, at least twice each day. In children I have obtained some good results by placing a glass funnel over the wound and attached to the small end of the funnel an aspirating syringe. In this manner the lung can be drawn into the wound, but we must exercise great care in so doing that we do not injure the lung. Again, when the operation has been delayed and the lung is collapsed and is firmly held by a thick, fibrinous exudate, Fowler and Delorme have advised that we open the chest by a large osteoplastic flap and strip the thick fibrinous covering from the pleura. Such decortication often allows an immediate partial expansion of the lung, which will then go on to recovery.

Tuberculous empyema has in the past given a bad prognosis, and it was not advisable to open and drain for this condition, because we found

the same symptoms here that we would in a cold abscess. On opening the lung we would immediately get a mixed infection followed by septic intoxication. I have in the past tried the iodoform emulsion in a number of cases, but without success. To-day we are able to cope with these cases in a satisfactory manner and with far better results by the use of Dr. Murphy's treatment. Should the abscess open into the bronchus or there be an external wound, thus preventing our using 2 per cent. formalin in glycerin, I believe in drainage followed by the use of bismuth paste. Dr. Emil Beck only recently reported a case of tuberculous empyema in a young man in whom he injected in April 1908 720 grams of bismuth paste, which remained six weeks. The patient gained in weight, but at the end of the six weeks he developed signs of bismuth poisoning. The cavity was immediately filled with 500 c.c. of warm sterile olive oil which formed an emulsion with the paste, the same being withdrawn on the following day. The symptoms of intoxication immediately disappeared, the patient again gaining weight. He discharged a seropurulent fluid until December the same year, when the sinus closed and remained so for three months. At this time the cavity was refilled with pure sterile petrolatum. It closed again the following day and has remained so to date.

As regards non-purulent tuberculous effusions, I wish to state that I have had great success in a number of cases by the use of the 2 per cent. formalin in glycerin solution. I wish to mention here two cases out of the series:

Case 4.—Mr. J. K., aged 35 years, came to me with a temperature of 103, constant and persistent cough and expectoration. On examination I found dullness extending over almost all the right lung, absence of respiratory sounds and vocal fremitus on auscultation. I advised him to go to the hospital, where I aspirated 28 ounces of dark straw-colored fluid, and injected 2 ounces of 2 per cent. formalin solution. The fluid aspirated was found to contain large quantities of tubercle bacilli. After the reaction from the injection, which is usually quite severe the first time, the temperature immediately dropped, and ten days later the operation was repeated, getting only 16 ounces of fluid with injection of 2 ounces of 2 per cent. formalin in glycerin solution. This operation was repeated at intervals of ten days to two weeks for a period of two months, the amount of fluid becoming less and less each time. At the end of two months he had gained a great deal in weight and was able to do some work, and for the past eight months he has seemed entirely well and is doing a man's work. I wish to emphasize the fact in this case that all the time he was under treatment and is still being treated for the underlying cause of pulmonary tuberculosis.

Case 5.—T. G., aged 28 years, teamster, came to me from a neighboring town after being sick and unable to work for over six months. He had a temperature of 102.4 with a slight cough and some expectoration. On physical examination I found signs of effusion extending over the lower half of the left lung. He went to the hospital where I drew off 18 ounces of straw-colored fluid which on examination was found to contain tubercle bacilli. After the aspiration I injected 2 per cent. formalin in glycerin. This operation was repeated at intervals of ten days or two weeks, until no more fluid had formed. He was of course on forced feeding and other treatment for the underlying condition, and has been to date. He is now doing his usual work.

Some very good results have been obtained in tuberculous effusion by the administration to the patient of his own serum. This was first originated by Gilbert of Geneva twenty years ago, but has only come into prominence of late. Marcou has recently reported a number of cases in which he obtained exceedingly good results. The technic is to withdraw 2 or 3 c.c. of fluid from the chest by means of an aspirating syringe and a long needle. Withdraw the needle slowly, and when the point is felt under the skin, the syringe should be inclined and its entire contents injected into the subcutaneous tissue. In many cases recovery follows one injection. The second injection should be done when it is found the fluid has stopped diminishing. As early as the second day a decided decrease in the amount of effusion can often be noticed. Out of Marcou's eighty-two cases, more than one-half were seen again two or three years after the recovery, and in no instance was there any rapid tuberculization observed.

There is little new to be said regarding new growths of the pleura, and as the time is short I shall pass over them, sufficing to say that in the primary form they are extremely rare. The diagnosis may often be made by *x*-ray or skiagraph. If fluid is present, aspiration is indicated, which does not alter the physical signs.

As regards the treatment, the only thing to do is that of a radical operation, the removal of the tumor, if it is diagnosed before it becomes too extensive.

Thus you may see that more has been done on the surgery of the pleura in the past few years than ever before, and I believe that the next few years will show even more progress in this line than in that of a corresponding period in the past.

Before closing, let me take this opportunity of extending my thanks to Drs. Murphy, Ochsner, and Beck of Chicago, who so kindly forwarded me literature on this subject.

PHTHISIOPHOBIA *

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No one can doubt that an inestimable amount of good has resulted in the present world-wide anti-tuberculosis movement but it must also be admitted that some of the results are, unfortunately, most deplorable. With the increased distribution of knowledge there has gradually developed at least one formidable and undesirable feature. The previous condition of careless indifference has been transformed into one of fear and hatred; a condition of actual phobia. To a certain extent it was to be expected that this would occur as soon as the dark ignorance of the past was dispelled by the light of the present, but that it would develop into an active, acute form is most unfortunate and surprising. As proof, one or two instances may be cited.

* Read at a meeting of the Douglas County Medical Society, Tuscola, Ill., Oct. 18, 1910.

The secretary of the California State Board of Health says:

"We object strongly to this class of poor coming to the state and have issued warning many times. We do this because we believe it is the worst thing they can do. While our climate is as good as any on earth for consumptives, it is impossible for them to live on climate alone. They come without money, hire cheap rooms which are often dark, and live on a small fraction of what they should. The result can only be one thing—death, and the death roll from tuberculosis in this state is increased very much by this class of people."

The superintendent of public health of Arizona says:

"The attitude of the people may be possibly described as passive hostility toward this class and one of charity toward the individual. No official warnings have been issued against the practice of physicians of the north and east in sending these cases to our territory, but none of us who lives here and realizes the conditions and the hardships enforced on these unfortunates ever fails to let his voice be heard in protest when the occasion is presented."

The secretary of the Board of Health of New Mexico says:

"We have no appropriation to get out printed matter that we should to warn this poor class of consumptives, of whom we have many, away, and the poor devils, when they spend the few dollars they bring with them, call on the people of the territory to be either sent home to die or to be buried here."

The secretary of the State Board of Health of Texas says:

"Our people do not like for poor consumptives to come into Texas. No official action has been taken except that we exclude them from coming in from Mexico and if tuberculosis residents of one Texas county become stranded in another Texas county they are returned to their home county at state expense. We have inserted a warning card in the *Journal of the American Medical Association* advising the physicians of other states that we do not want their indigent or hopeless cases."

Only recently the Oklahoma State Board of Medical Examiners, while suffering from a most malignant type of phthisiophobia, decided it would no longer issue licenses to consumptive physicians. It might be of interest to know how many of the members of this board are possible consumptives and if they advocate or contemplate cancelling the license of a physician if he unfortunately becomes infected. Such a plan would inevitably deprive the profession of many of its most valuable and zealous workers. The action of the Oklahoma Board reaches the dignified height of "simple foolishness," and should arouse the indignation of every self-respecting member of our profession. If the doctors are to become victims of this phobia, what is to be expected of the consumptive and the general public?

To-day the average poor consumptive no longer lives a life of hopeful expectancy and dies a hallelujah death, as he formerly was supposed to do, but instead, he ekes out a miserable existence, too often shunned and abandoned by family and friends. While no one would wish or choose the lot of the justly punished poor Philip Nolan in "The Man Without a

Country," nevertheless, it is much to be preferred, when compared with that of the average consumptive. That there are enormous risks and dangers associated with tuberculosis all will admit, conditions which should not be minimized but equally truly ought not to be magnified. In the first place it is to be distinctly understood that precaution, founded on our present knowledge, is entirely separate and distinct from fear, without reason or foundation. In the past, when disease, epidemics and famine, were considered as the reward for evil, fear was the predominating element. At a later period with more definite idea of cause and effect, there appears the element of precaution; at first most pronounced with those diseases accompanied with visible manifestations but practically always present. More recently, with the demonstrated bacterial cause of disease, the previous condition of fear, instead of diminishing or giving way to precaution, has continued and in some instances even increased. Generally, we fear an unknown danger, and our fear is in direct proportion to our ignorance. A known danger or risk by precaution is avoided, while fear may be entirely absent. Fear or cowardice is an inheritance of the dark ages, the result of misunderstanding or ignorance, and when present is a serious reflection on our present knowledge. Precaution is a natural result of increased knowlege and bears the same relation to fear as day does to night.

The consumptive, while the chief offender, is generally the chief sufferer. He may suffer from the fear that he has consumption but his real suffering often dates from the time he becomes aware or is informed that he has the disease. This is in part due to the fact that he knows he is afflicted but in greater part because of the hardship thrust upon him as a result of the fear in others of his condition. Oftentimes in the dispensary work patients have requested that the nurse should not call or the people where they lived not be informed, otherwise they would have to move. We all can recall patients and even physicians who would not consent to a physical or sputum examination for fear of the result. Nearly every physician has been requested by the father, the mother or some member of the family not to inform the patient if a tuberculosis be found. The justification of such a course is attempted on the supposition that if the patient is told that he has tuberculosis he will be deprived of hope and courage. No conscientious physician will lend himself to any such scheme to deceive. To accomplish the best results for the patient and his relatives or associates, it is necessary to secure his cooperation and this can only be done by obtaining his confidence. To inform a patient that he has a "bronchitis" or a "tendency to tuberculosis," when there is an unquestionable tuberculosis, is not only a gross injustice to the patient but also to his family, friends and the public. Experience may indicate, in certain instances, that it is better policy to inform the patient of his actual condition after the first or second examination. The result will also depend upon the manner in which such information is given. It is quite the rule that a certain degree of depression or fear be present for a short time following the first information but it soon disappears, especially with the least indication of improvement. Not

infrequently after an individual has contracted tuberculosis, the fear which he previously possessed, quite suddenly disappears; he does not consider himself as dangerous and cannot understand why others should so regard him.

The amount of phthisiophobia among physicians is surprising, sufficient for special comment and wonder. Why this should be so is difficult to understand. The physician is far less exposed to infection than the nurse, the relatives or associates of the patient; he knows the dangers and can guard against them by intelligent precaution, but, nevertheless, is often the subject of phthisiophobia. There are physicians who so fear the disease that they will not attend consumptives in either their private practice or hospital service. Among the members of the resident staff of public general and consumptive hospitals the fear of the disease is well pronounced. Too often the consumptive service is fortified, neglected or completely ignored; a valuable experience being lost and the patients compelled to suffer an increased hardship. In other respects the physician is directly responsible for much injustice and hardship to which this class of patients is subjected. Of these there should be mentioned the failures in diagnosis; some of which consist in regarding advanced cases as moderate or incipient. Too often well developed cases are diagnosed almost anything but tuberculosis. The general complaint from the tuberculosis camps, sanatoria and hospitals is the lack of early diagnosis, and, undoubtedly, this is in great part accountable for the partial failure in the treatment. The demand for an early diagnosis has led to the employment of various aids, chiefly, tuberculin in some form. There can be but little doubt of its utility as a diagnostic aid, but, a special warning is necessary at this time. Because of the ease with which one of the local tests may be performed, it has become almost a routine, whenever tuberculosis is suspected. A frequent error arises from the difficulty in interpreting the results. Practically every adult will give a positive reaction but that does not necessarily indicate a tuberculosis requiring medical attention or treatment. It must also be remembered that an active tuberculosis may be present and fail to give a tuberculin reaction. At the very best a tuberculin reaction should be considered only as corroborative in connection with a careful physical examination. Relatively considered, a negative reaction in the adult is more valuable than a positive, while the relative value increases with the youth of the patient. Until this is learned and fully appreciated by the practitioner, mistakes will continue to occur. In this connection might also be mentioned the results of the tuberculin tests in animals, especially in cattle. Aside from the direct financial loss to the owner, amounting sometimes to his entire herd, a loss which in only a few instances is partially assumed by the state, there is produced in the public a fear of contracting a tuberculosis from the consumption of meat or dairy products, especially milk. Another offense to which the physician is directly accountable consists in giving the patient improper advice in reference to a change of climate. The day has long since passed when such advice as "go West" is sufficient or proper, and to do so, without due consid-

eration, is nothing short of criminal negligence. Unquestionably suitable climate is a great assistance in the treatment but climate alone cannot cure. Competent medical supervision, proper food and treatment, preferably in a sanatorium, are just as necessary as in a less favorable climate. To obtain these advantages sufficient financial reserve is absolutely necessary. Thousands each year are sent West or Southwest only to succumb more rapidly from home sickness or starvation. A visit to the localities frequented by the consumptives is necessary to obtain an adequate idea of the actual conditions, for only the power of a Dante could describe such an Inferno. The "lunger," as the consumptive is designated in the West, is not welcome. His money, if he is fortunate enough to possess any after paying traveling expenses, may make him desirable and tolerated until it is gone. Even with sufficient means he will experience much difficulty, for many of the hotels and boarding houses are closed to him. Expenses are high and to obtain employment suitable to his condition is only a dream of the physician who sent him. A glance at the "want list" in the daily papers, with the usual "consumptives not accepted," or a visit to the city park, post office, or public square, the usual congregating places, will convince one of the hopelessness of obtaining employment. There is nothing left for him to do but idle away his days and too often spend his nights in a gambling hall or saloon, where he squanders his last cent and becomes a public charge.

Among the nursing profession the fear of tuberculosis has become so pronounced as to render it quite impossible to secure the services of competent trained nurses for either private patients, hospital or camp service. This has resulted in the necessity of employing practical nurses, not in all instances competent or specially prepared for such service. In many instances these positions are filled by tuberculous nurses in either a convalescent or arrested stage of the disease, as they are disqualified to do general duty and they accept such positions rather as a necessity than by choice.

At this time when many members of the medical and nursing professions, when many of the patients and general public, are more or less afflicted with the fear of tuberculosis, some good may result by a consideration of the actual facts and conditions. This may be best accomplished by a brief review of our present knowledge of the tubercle bacillus as obtained from laboratory investigations and experiments; by the clinical study of the frequency of infection of those persons concerned in the care of the tuberculous and finally the determination of the frequency of new cases of tuberculosis in the inhabitants of a region frequented by the tuberculous. At first glance it might appear necessary to consider the as yet undecided contention of the portal of entry and possibly the dualism of the tubercle bacillus. From the present indications, there can be but little doubt of the existence of a distinct and separate human and bovine type of the bacillus. It also appears evident that both types may and do produce a human tuberculosis. As for the portal of entry, this is yet a debated question, but from the evidence, it would appear that it is more than probable that the infection may occur by either the

pulmonary or gastro-intestinal route, in some by one, in some by the other.

Of much greater importance, from our present standpoint, is the consideration of the viability of the bacillus and the question of body resistance. The chief means of distribution of the tubercle bacilli is unquestionably the phthisical sputum. It has been estimated that a moderately advanced case of consumption expectorates 7,500 millions of bacilli in twenty-four hours. Not long since the belief existed that the very breath of the consumptive was germ laden and infected the surrounding atmosphere, that the disease was spread by the winds, much like a miasm. The bacilli were supposed to be ubiquitous, and the only wonder was, that everybody did not die of the disease. How does this compare with the present knowledge? Investigations by many, especially Koch and Kitasato, show that the bacilli in pulmonary cavities or in expectorated sputum are at least to the extent of 50 per cent. already dead. They retain their staining qualities but are harmless.

Many investigators have exposed animals to the breath of consumptives or the air passed through or over phthisical sputum without producing any trace of the disease. Heymann's experiments with glass cabinets in which consumptives were placed are also instructive. Receptacles were placed at various distances from the patients during the act of coughing with the object of catching the droplets, which were later mixed with sterile broth and injected into the guinea pigs. He found that the zone of danger about the consumptive under ordinary circumstances does not exceed three feet. He also found that the duration of life of the bacilli when exposed to light was less than three days. These findings are in harmony with the results of others, as follows:

TABLE 1.—EFFECT OF DIRECT SUNLIGHT UPON THE TUBERCLE BACILLUS

Author	Conditions	Not Killed	Killed
Koch, 1890	Tubercle bacilli	.....	Few minutes to several hours.
Feltz, 1890	Tuberculous sputum in road dust exposed to sun.	About 140 days.	.....
Ransome & Delepine, 1894.	Pure cultures dried on paper in thin layers.	.....	12½ hours.
Migneco, 1895..	Tuberculous sputum on linen and woolen cloth.	.....	24 to 30 hrs. virulence diminished in 10 to 15 hrs.
Gardiner, 1898..	Tuberculous sputum on:		
	Sand	1¾ hrs.	
	Stone	2 hrs. 5 min....	
	Wood	24 hrs.	
Mitchell & Crouch, 1900.	Tuberculous sputum placed upon sterilized soil.	35 hrs. virulence diminished after 20 hrs.	45 hrs.
Jousset, 1900...	Tuberculous sputum exposed to dust and sunlight.	.....	4 hrs.
Annett, 1903...	Dried muco-purulent sputum in small masses about size of one expectoration.	2 to 24 hrs.	48 hrs.

TABLE 1.—CONTINUED

Author	Conditions	Not Killed	Killed
Cadéac, 1905...	Tuberculous sputum on a board.	.....	24 hrs.
	Tuberculous sputum on glass plates exposed to artificial light.	24 hrs.	48 hrs.
Twitchell, 1905.	Tuberculous sputum exposed to direct sun rays.	1 hr.	7 hrs.
Di Donna, 1907.	Pure cultures	6 days	8 days.
Koch, 1890.....	Cultures of tubercle bacilli exposed to dispersed daylight near windows.	.....	5 to 7 days.
Ransome & Delepine, 1894.	Pure cultures dried on paper in thin layers, exposed to air and light.	.....	4 days.
	Same exposed to sunlight.....		12¼ hrs.

The period of reproduction of the tubercle bacillus in cultures has also been determined. Strauss states that they fail regularly after eight to twelve months and usually after five to six months. Theobald Smith found the cultures dead after three months. According to these findings the expectorated sputum contains many already dead bacilli; that the exposure to sun light, as well as the decomposition of the sputum, readily destroys the organism, which assists materially the efforts of controlling the spread of the disease by carefully collecting the sputum as it is expectorated or the moist sweeping of the rooms occupied or frequented by the consumptive, as well as the moist sweeping or flushing of our streets.

Another consideration of importance is the result of inhaled dried tuberculous sputum or cultures. Tappeiner, Berthean, Veraguth, Weichselbaum and others employed the dry sputum; while Koch, Conet, Gebhardt and others substituted the dry pure culture. In the experiments practically all meet with failure. Flugge even denied the importance of the bacillus containing dust as a factor in the spread of the disease but considered the droplets containing bacilli, given off during coughing, as the dangerous element.

The failure in the experiments with dried sputum or cultures is probably due in part to the associated dangers, in part to the hydroscopic material which becomes mixed with the mucus of the respiratory tract or saliva of the mouth, which is not true with the droplets. With a normal naso-pharyngeal mucous membrane, relatively but a few of the inhaled bacilli reach the lungs. The larger percentage is swallowed and finally reach the gastro-intestinal tract where many are destroyed in the gastric contents or escape by the intestines. The few that are retained and taken up by the pulmonary or intestinal mucous membrane, when conditions are normal, find in the lymphatic structures, barrier after barrier, that must be overcome before they can produce any serious result. The proof of these statements is to be found in the study of the actual clinical conditions.

One of the first reports bearing upon the subject was made by Dr. Williams, of the Brompton Hospital, an institution for far advanced consumptives. In 1882, when his first report was made, the hospital had 240 beds and had been in existence thirty-six years. All members

of the staff were carefully traced, some of which served not less than six months and many for several years. Dr. Andrews has performed a similar study at the Victoria Park Hospital.

Their findings may be presented in tabulated form:

TABLE 2.—BROMPTON, 1846-1882—VICTORIA PARK

	Number of Staff.	Number of cases of phthisis			Total Deaths from Phthisis.	Number of Staff.	Number of Cases of Phthisis.	Total Deaths from Phthisis.
		Before Admission.	During Stay.	Subsequently.				
Resident medical officers	4	..	..	..	..	12	1	1
Clinical assistants	150	1	1	6	5	51	3	3
Matrons	6	..	..	..	..	4	..	..
Nurses	101 ?	..	1 ?	4	5 ?	{ 255	1	1
Servants	32 ?	..	..	..	..			
Porters	20	..	..	..	..	34	1	1
Secretary and clerks	9	..	3 ?	..	..	3	1	1
Dispensers	22	..	3	2	3	7	..	..
Chaplain	4	..	..	..	..	5	..	..
Physicians and assistant physicians	29	..	..	..	1	31	1	1 ?
Total	377	1	8	12	14	402	8 (7?)	8 (7?)

Since 1882 the Brompton Hospital has increased its bed capacity to 458, necessitating an increase in the staff. This has been carefully observed by Dr. Williams and furnishes the basis of his second report which may also be tabulated:

TABLE 3.—BROMPTON, 1882-1909

	Number of Staff	Number of Cases of Phthisis			Total Deaths from Phthisis
		Before Admission	During Stay	Subsequently	
Resident medical officers	11	..	..	..	..
Assistant resident medical officers	14	..	..	..	..
House physician and clinical assistants	181	..	..	..	..
Number traced	176	..	..	4	2
Porters					
Resident	56	..	..	..	..
Non-resident	79	..	6	..	3
Pathologist's assistants	4	..	1	..	..
Dispensers	23	..	..	..	..
Total	544	..	7	4	5

In his second report Dr. Williams does not include the nurses as many of them served but a short time, a period too brief to be of any statistical value.

A study of these reports, from a hospital for far advanced cases where frequent infections might be expected, reveals results rather surprising.

They also demonstrate the relatively slight danger of infection to those having the care of even far advanced consumptives. The frequency of infection among the porters again calls attention to the dangers of the fresh sputum. Of the total number, 136 resident and non-resident.

six became consumptive, of whom three died. Three are employed in destroying the sputum, sterilizing the linen and are known as sterilizing porters and the three deaths include two of these.

Saugman has studied the question of infection of medical men engaged in the care of the tuberculous and furnishes some valuable statistics. He applied to 112 institutions and received replies from sixty-five sanatoriums in Germany, France, Austria, Hungary, Switzerland, Norway, Sweden, Holland and Finland. From inquiries he found that very few of the doctors wore masks or took any special precaution during the chest or throat examination. Saugman does not include any doctor who had not resided and treated consumptive patients for at least six months. Out of the total number of 289, from whom he had positive information, 107 had been previously infected, while 182 were considered healthy. The average period of service for the previously infected 107, was three and one-half years and the period of observation up to the time of the report, 1902, was six and one-half years. Of these 107 old cases of tuberculosis, 16 died of tuberculosis, 9 still had the disease, 1 died of carcinoma and 73 had apparently recovered. The average period of service of the 174 healthy doctors at the time they took up the sanatorium work was three years and their after history was traced for three and one-half years. Of this number, two or possibly three, became tuberculous but all recovered, while five had died from other diseases and 166 remained well.

Saugman also reports on sixty-six throat specialists from eight clinics, from which he had definite and reliable information. One of this number was previously tuberculous, but, after seventeen years of active practice, was in good health. The remainder had been engaged in laryngeal work for four years and not one had developed a tuberculosis.

Saugman's report shows of the 174 sanatorium doctors, previously free from a tuberculosis, 2 or probably 3—1.78 per cent.—either during their service or subsequently, became tuberculous with later a perfect recovery, while not one of the laryngologist became infected.

Another means of estimating the danger of infection from tuberculosis is to determine the frequency of new cases in a region frequented by such persons. This task has been most efficiently performed by Dr. Gardiner of Colorado Springs and Dr. Munn of Denver. After a year of most careful investigation Dr. Gardiner found for a period of fifteen years, from 1877 to 1892, but six deaths had occurred from non-imported tuberculosis. During the following five years he continued his careful investigation and found five additional cases, four of which died, making total of ten deaths for twenty years. This number is so small as to appear impossible or incorrect, especially when we consider the large number of consumptives who go each year to Colorado Springs. It must, however, be remembered that from necessity and constant association with tuberculosis the physicians of Colorado Springs become especially efficient and Dr. Gardiner was unable to determine that more cases had occurred and passed unnoticed. Let us compare these findings of a region frequented by large numbers of consumptives, from all over the country, with the

findings of the ordinary large city. The average number of deaths yearly from consumption to each thousand of the inhabitants in most cities is three. According to the statistics Colorado Springs with a population of 20,000 inhabitants should have had, at the time of the report, an average of sixty deaths during the year from non-imported consumption. As a matter of fact only one such case occurred and only ten for the period of twenty years.

The observations of Dr. Munn, city physician of Denver, are almost as satisfactory. He found in the year 1895, sixty-four deaths from non-imported consumption in a population of 150,000, an average of less than one-half a death per thousand.

Although the previous reports are highly gratifying, they become even more so when compared with the findings in a general hospital accepting tubercular patients. The resident staff of the Cook County Hospital has been traced and the frequency of tuberculous infection determined as accurately as circumstances will permit. During the period of thirty-three years, from 1866 to 1909, three hundred and seventy-six have served as internes and each member, with the exception of the first three, has served a period of eighteen months. Until within the last year and a half, no attempt was made to segregate the tuberculous, but they were cared for in the general wards, not especially constructed for this class of patients and where no special precautions were enforced.

Of the 376 members of the resident staff, three had tuberculosis before their service, four during their service and thirteen have developed it since that time, making a total of twenty, of which six have died.

Accepting the validity of the preceding statements, the following appears evident:

First, The danger of infection in tuberculosis has been over-estimated and exaggerated.

Second, As a result, the tuberculous and the public at large have been subjected to great inconvenience and hardship.

Third, That the medical profession should realize the evils of these misconceptions and endeavor to correct them so far as possible; that physicians no longer continue to repeat many of the current stereotyped statements on tuberculosis, but to more nearly approach the truth as indicated by the knowledge of recent development.

Fourth, That the nursing profession should be properly instructed and trained in the care of the tuberculous.

Fifth, Since much of the fear of tuberculosis has resulted from the educational efforts of the various anti-tuberculosis organizations, it becomes incumbent upon them to continue their efforts and assist in diminishing this evil.

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ON THE ACTION OF IODIN ON THE TISSUES

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Ever since the discovery of iodin in 1812 by Courtois, a soda manufacturer in Paris, has its use been both varied and extensive. Its therapeutic value was highly lauded by such men as Veljean, Langenbach, Koch, Liebig, Bryant, Roux, and Mikulicz, and especially by the late Senn, who placed it as the most perfect of antiseptics, and always preached its virtues in his clinics.

The miraculous results derived from its administration in tertiary syphilis has justly placed it as one of our most potent drugs, but its value in other conditions, and especially its use in treatment of wounds, it seems is surely very much overestimated.

I have often seen how in operating for tubercular cervical adenitis, the operative field has been promiscuously swabbed with tincture of iodin, not only in the suppurative cases, but in those in which there was only the slightest tendency to "breaking down" of the glands. All these latter cases invariably suppurated. From my own experience, I know that most of these latter cases heal with primary union if treated only for a few days with hot moist dressings.

The local action of iodin on tissues has been studied extensively by several observers. Marchand and his pupils, Burner, Grutzner, Senn, Bohn, Menzer, and especially Heinz, have carefully experimented on the action of iodin on the tissues. The latter used iodin solution of 2 per cent. strength. By injecting 1 c.c. of this solution into the pleural cavity of middle-sized rabbits, he invariably produced adhesive pleuritis with a localized sub-pleural pneumonitis. Injecting 2 c.c. of the same solution into the peritoneal cavity, he found forty-eight hours later at autopsy extensive fibrinous adhesions in the injected area. These adhesions, he claims, were so strong that they could hardly be separated.

I also made a few experiments along this line, but the main object of this research has been to ascertain the action of iodin on the healing process of wounds. For this purpose, two wounds were inflicted on the back of dogs on each side of the spine, treating one with, and the other without, application of iodin. The wound treated with iodin always healed a great deal slower than the wound not so treated. In the experiments tincture of iodin was used.

Dog 1.—Male, grayish white; 8 kgm. June 15, injected subcutaneously 5 c.c. of tincture of iodin in left gluteal region. June 17, autopsy: slight necrosis along needle track; otherwise negative.

Dog 2.—Male, brown; 12 kgm. June 15, injected 5 c.c. deep into muscles of left gluteal region. June 16-18, injection repeated daily. June 19, dog found dead. Autopsy: extensive sloughing of gluteal muscles.

Dog 3.—Female, brown and white; 9 kgm. June 17, intraperitoneal injection of 10 c.c. tincture of iodin. June 19, autopsy: localized fibrinous peritonitis with easily detached adhesions.

Dog 4.—Male, grayish white; 12.5 kgm. July 21, back shaved. Two wounds and cut with dirty razor on each side of spinal column. Wound of left side

swabbed with tincture of iodin and covered with dry dressing. Wound in right side covered with hot wet plain water dressing. July 22, left side, wound open, grayish looking; right side, wound edges agglutinated, somewhat reddened. July 23, appearance about the same. July 24, left wound discharging pus; right seemingly healing with primary intention. July 26, about same. July 27, right wound healed. August 12, left wound healed.

Dog 5.—Male, black; 8 kgm. July 24, back shaved. Two wounds 6 cm. long cut on each side of back through skin and fascia. July 27, both wounds suppurating; left wound swabbed with tincture of iodin; right wound hot moist water compress; both wounds treated daily with wet dressings; left wound touched every three days with tincture of iodin. August 4, right wound healed. August 21, left wound healed.

Dog 6.—Female, brown; 10 kgm. July 25, back shaved; wounds produced as above; left wound swabbed with tincture of iodin; right wound, no treatment; wounds were untreated. August 20, right wound healed. August 25, left wound healed.

The experiments are few, but enough to at least throw some doubt on the value of the use of iodin in wounds. The interference in the healing process is due not only to destruction of tissue but also to the interference with local phagocytosis.

THE DEVELOPMENT OF THE THEORY OF HEARING *

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The earliest theory of hearing was that advanced by Aristotle in the fourth century B.C., the fundamental idea of which was that since the ear is the organ for the air sense there must exist in the head a reservoir of air to respond to the sound arising in the outer air. This theory persisted for over 2,000 years.

Modern theories of sound perception are based on the knowledge of the minute structures in the labyrinth. Two conceptions fundamental in our present day theories were evolved, however, several centuries before the discovery of the membranous labyrinth and the organ of Corti These conceptions are, first, that sound perception is dependent on the vibration of structures in the labyrinth in response to sound waves, and second, that the perception of the various tones takes place in separate parts of the cochlea. Just what this vibrating structure is and the manner in which it responds to the impulse of sound waves constitutes the nucleus of the various theories of hearing.

Before the discovery of the membranous labyrinth it was usually assumed that the osseous lamina spiralis, a bony shelf which forms a partial partition running through the cochlear tube from the base to the apex, constituted the vibrating mechanism. Its varying width from one end of the cochlea to the other, it was supposed, made it possible for this plate to respond to tones of different pitch. Before the discovery of the membranous labyrinth the idea had been expressed that there exist membranous bands (nerve fibers) in the cochlea which take these sound

* Abstract of paper read before the Chicago Medical Society, Nov. 2, 1910.

impulses. Since the discovery of the organ of Corti all have agreed that the hair-cells are the structures in which the transference of the physical impulse of sound waves to nerve impulses takes place, and that these hair-cells are stimulated by an irritation applied to their projecting hairs. Some have assumed that these hairs receive their stimulation directly from impulses of sound waves passing through the endolymph. This hypothesis can readily be shown to be untenable and at present is not adhered to by any physiologist. The principle is accepted now that the stimulation of the hair-cells is dependent on an interaction between their projecting hairs and an overhanging structure known as the membrana tectoria. Helmholz believed that this interaction was brought about by the vibration of the membrana basilaris. This structure, varying in width from one end of the cochlea to the other, Helmholz believed, was able to respond on the principle of physical resonance in its different parts to tones of different pitch. All the modifications of the resonator hypothesis of Helmholz and in fact all the theories of hearing that have been advanced since the time of Helmholz have assumed that the membrana basilaris is the vibrating mechanism.

My own interest in the labyrinth was primarily an anatomic one. My interest in the physiology was aroused by the discovery of anatomic conditions which convinced me of two things: first, that the membrana tectoria and not the membrana basilaris is the logical structure for responding to the impulses of sound waves, and second that there are fundamental anatomic objections to any theory which places the active rôle of vibrating structure in the membrana basilaris.

My work, I believe, has established the fact beyond the question of a doubt that the membrana basilaris is physically incapable of performing the rôle of a vibrating mechanism, and furthermore that the membrana tectoria must be this mechanism. Just how the membrana tectoria responds to the impulse of sound waves is largely speculative since this is beyond possibility of actual demonstration. My conclusion regarding the manner in which this structure responds is arrived at by assuming that manner of response which best explains the various phenomena associated with sound perception both in the normal physiology of hearing and in the phenomena associated with diseases of the labyrinth.

THE DIAGNOSIS OF CANCER OF THE RECTUM*

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This paper is not intended to elaborate any technic of treatment because that is definite enough once the presence of the cancer is known. I wish, however, to call your attention to the clinical pictures of this trouble and to consider the different types together with the symptoms and degree of malignancy of each. I presume to take up your time with this subject because certain writers state that the diagnosis of cancer in

* Read before the South Side Branch, Chicago Medical Society, Oct. 17, 1910.

or about the rectum is easy and yet I see every now and then a growth which has progressed considerably without being diagnosed, although the patient has been in charge of careful and well-informed physicians. I am also free to confess it is always a source of anxiety to me in making a rectal examination to be sure that there is or is not a malignant growth present, because I am as fearful of erring one way as the other.

Cancer in the rectum is the most fatal and sometimes one of the most painful diseases we have to meet. Its exact cause here, as elsewhere in the body, is obscure. The theories advanced are so much at variance that the writer is not prepared to advance an opinion. Statisticians and pathologists differ considerably in their reports, but it is safe to say that the large bowel contributes about 95 per cent. of all of the cancers of the intestinal canal and of these 80 per cent. are found in the rectum and 15 per cent. in the colon. Cancer of the bowel is much more frequently found now than formerly, but this remark applies to cancer in general and is in a measure due to better diagnosis and more careful collection of cases.

As regards the location of the disease, cancer is most frequently found about three to five inches within the rectum, the lower limit of the growth being about on a level with the internal sphincter. Next in frequency is the region about the anus, and least frequently is the growth found in the upper rectum or sigmoid. The region extending up from the internal sphincter is not only the most frequent site, but also the most fatal because at this point the disease more rapidly runs its course and is more liable to accidents on account of increased anatomical dangers to obstruction. Williams estimates that there are forty cases of cancer within the rectum to three at the anus. The different proportions of epithelial structure and stroma in each cancer determines its degree of malignancy and also its physical characteristics.

At the anus squamous or pavement cell epithelioma is the rule and is the same form of cancer as is so commonly seen on the lip. It begins as a hard warty nodule just under the skin at the muco-cutaneous junction; not within the rectum. It makes slow progress and gradually develops an indurated base. From the beginning the skin is fixed to the growth and is not movable over it. The tumor is in the skin and does not spread to the deeper structures. Microscopically there is found the characteristic nests of squamous epithelium which invade the lymph spaces from the surface, The stroma is made up of fibrous and myxomatous tissue and is pretty well supplied with blood-vessels and inflammatory corpuscles.

The growth does not ulcerate until late in its existence. The ulcers scab over quickly but slough away beneath the scab and when the crust is removed the ulcer is larger than before. From the ulcer exudes a watery fluid. Around the ulcer develop other nodules and the tendency of the growth is to surround the anus and invade the perineum rather than to creep into the rectum. The indurated base that was first felt about the nodule is constantly widening about the other nodules and ulcers.

During the nodular stage of the cancer growth there is no pain and also as the growth invades the perineum it is not sharply painful. Most patients speak rather of an uncomfortable feeling or a soreness. If the anus is eroded, which, however, is rare, the pain is similar to irritable ulcer or fissure and begins as early as the growth pushes through the mucous membrane. The cancerous ulcer bleeds or oozes blood easily by abrasions but the hemorrhage is usually slight.

Having now seen the clinical picture of cancer at the anus let us differentiate it from other ulcerations of this region.

1. The lupoid ulcer begins at the same point but the ulcer is clear cut and bands of cicatrization develop. These bands break down shortly after they form but other scars form and clinically we usually find some of these bands. The ulcer spreads rapidly and sometimes involves the whole buttock. The edges of the ulcers are not thickened. The base of the ulcer is soft, but beneath it is a hard, indurated mass. Examination of scrapings will usually show tubercle bacilli.

2. The plain tubercular ulcerations differ from the lupoid in that they first appear as anal fissures. They may be single or multiple but as they spread they soon coalesce into one large ulcer. They are not painful. About the base of the ulcer is a dense fibrous layer which seems to limit the depth and so the ulcer may surround the anus without reaching the connective tissue beneath the skin. It is a singular fact that any dense scar will act as a barrier to the spread of the ulcer, probably because of the lack of blood-vessels.

3. Simple traumatic ulcers at the anal margin differ somewhat from similar ulcers on other parts of the body because numerous bacteria, habitants of the intestinal canal, abound in the skin of these parts. The ulcers are irregular in outline with red but usually sharp, flat edges which slope down to the base of the ulcer. The base is crater shaped with lots of granulations and generally freely discharging pus. This pus is foul smelling because of the many sudoriferous glands about the parts. The granulations bleed easily on wiping. The pain on defecation may be slight but is not acute.

4. Eczema about the anus is rarely of the papular type but is usually the erythematous form. In chronic cases the skin becomes dry and brittle and cracks on stretching. Beneath the eczema the skin is indurated but the hardening is in the skin and not beneath it as in cancer. The whole trouble is in the skin and moves with it. The ulcers if present are shallow.

5. Rodent ulcer. The edges of the rodent ulcer are hard and well defined. The ulcer begins in the skin and grows deeper and has few granulations. It begins on the skin about the anus and not at the mucocutaneous border as does cancer. The induration about the base of the ulcer is only moderate in amount in contrast to the wide induration about cancer.

6. Irritable ulcer or fissure. The cardinal sign of irritable ulcer is the sharp, lancinating pain at stool. The ulcer is located in and conforms

to the shape of a fold in the anal mucosa. It extends up to the sphincter grasp. It is shallow and the edges are inflamed, sometimes even thickened, but never indurated. If there is a tumor associated with the ulcer it is most likely the sentinel pile or the ruptured crypt of Morgagni.

7. Warts may appear at the anal margin but have no indurated base. Ulceration of the warts occurs only rarely and then usually in dirty subjects only.

8. Chancres. The most common site of chancres is in the skin just outside of the anal folds and the ulcer resembles chancres elsewhere. It is superficial and circular in outline but the induration at the base does not extend beyond the edges. The border of the wound is red but the center is dark gray. Chancres here are not painful.

Cancers Within the Rectum. The diagnosis of malignant tumors within the rectum is more perplexing. I have seen a distended urinary bladder and again a mass of impacted feces set a medical man worrying about a rectal tumor. These cases both of course were easily cleared up under their own appropriate treatment, but there are a lot of cases that are not so easily diagnosed.

The cancers here belong to the columnar cell growths and resemble the histologic structures of the mucous membrane from which they grow. They are adeno-carcinomas and closely resemble the benign adenomas; but the glandular hyperplasia of the simple adenoma is restricted to the mucous membrane and grows up into the lumen of the bowel, while the carcinoma infiltrates the submucous tissues and spreads out in all directions. Microscopically the resemblance between the groups of cancer cells and the tubules of the normal gland are so great that the tumor may be mistaken for a benign adenoma, but in the margin of the growth quite atypical cells will be found.

These adenomas ma, arise in the cylindrical cells which line the crypts of Lieberkühn and without any change in structure pierce the deeper layers of the rectum and produce metastases. Microscopical section of such tumor does not determine its character as to benignancy. Although these growths may be benign at the start the cylinder cells very soon proliferate in some part of the mass forming solid strings of cells. The goblet cells then disappear. Not all adenomas, however, are benign at first. Sometimes the cells become polymorphous and fill up the alveolar spaces and we have an alveolar carcinoma. The farther the cancer tissue is removed histologically from the normal the more malignant it is.

These cancers arise above the sphincter and are easily differentiated from the squamous variety. Early in its existence the growth may appear pedunculated, and clinically it is impossible to distinguish from simple adenoma until the tendency toward a broad infiltrating base shows the malignancy. Later ulceration occurs and inflammatory changes are superimposed; all being aggravated by the irritation of the feces. The cancer varies somewhat in gross and microscopic appearance and also in clinical history according to the histologic structure which predominates in the makeup of the growth. Thus although the same elements are used we find encephaloid, scirrhus or melanotic cancer,

The encephaloid cancer arises primarily in the crypts of Lieberkühn and is enclosed in a connective tissue capsule which sends trabeculæ into the mass, dividing it into lobules. The cells are large, round and nucleated. It is often vascular with large veins coursing through it and on its surface. In the interior extravasations of blood give the tumor a soft, mushy feel and it resembles brain tissue in appearance; hence its name encephaloid. In other instances it is spongy and shreddy like placenta. Later a large amount of cancer juice containing cells exudes on pressure, and if dropped into water it quickly diffuses, giving the whole a milky appearance. Paget considers this a valuable rough test in diagnosis. If seen early the cancer is movable in the subjacent tissues, but when seen later it is soft and friable upon an indurated base. These cancers grow rapidly and may even fill the whole pelvis, involving the surrounding tissues while secondary growths appear in neighboring organs. The glands are involved early and if the tumor is removed it soon recurs although considerable temporary relief is obtained by its removal and the cachexia disappears for a time. Digital examination is deceptive because of the extreme softness of the tumor and the apparent fluctuation imparted, but a little fluid aspirated will clear all doubt by showing cancer cells and blood. As the deeper structures degenerate they become cystic with a mucoid, glue-like, translucent yellow substance, which distends the tissues and the growth is called alveolar or colloid cancer. Generally speaking it may be said that the softer the cancer mass the more rapid its growth and the greater its malignancy. These encephaloid cancers are the most malignant of the rectal tumors and are so friable that they bleed on the slight traumatism of an ordinary examination.

Scirrhus or hard cancer is the variety most frequently met in the rectum. It arises in the submucous connective tissue as a hard nodule beneath the normal mucous membrane and radiates out in various directions. These new extensions can sometimes be felt as hard bands or processes, claws, from which cancer receives its name. The cut tumor presents a cancer mass that is bluish-white and gristly with masses of fat and fatty tissue between the trabeculæ extending out into normal tissue. The center of the mass is generally degenerated and if the tumor is cut the center retracts, making a saucer-like appearance. This has been called the cancer cup.

The scirrhus cancer is said to arise more frequently on the anterior wall of the rectum near the prostate, but it soon infiltrates all surrounding tissues and eventually involves the bladder. A circular stricture or collar forms about the rectum and as the lumen of the bowel is closed an intractable constipation appears. Complete obstruction of the rectum may occur and even rupture of the gut from fecal accumulations above the cancer has occurred. Blood-vessels and nerves appear to be crushed out of the tumor and there is very little if any hemorrhage or pain.

Ulceration comes on late in the scirrhus cancer and as there is very little absorption or toxemia the cachexia comes on late also.

The diagnosis of scirrhus cancer is made by its hardness and contractility, but its history is often necessary to differentiate it from simple

fibrous stricture of the bowel. This latter may exist for years with no other symptom perhaps than the intractable constipation. Kelsey reports a case of dysenteric diarrhea which resulted in a stricture and presented a typical clinical picture of scirrhus cancer that had existed for eighteen years. Histologically the scirrhus cancer stroma is abundant and the alveoli narrow with the cancer cells frequently small. Fatty degeneration of the cells often occurs but the stroma remains to contract. Secondary metastatic growths occur late and there is hope of a cure by early and thorough excision.

Melanotic cancer is rare within the rectum and its histologic relationship is not clear. It is classed as a carcinoma by certain pathologists and as a sarcoma by others. It is soft and medullated and has an increase of pigment. It is rapid in growth and very malignant and often becomes generalized. Only ten cases have been reported and only six of these had complete histories. Five were men and one a woman. The ages varied from 45 to 64. Microscopic examinations were made in five cases and these were all classed as sarcomas. The symptomatology was the same as any rectal cancer with the exception of one case where the stools were black, and also after making an examination the finger was blackened.

For all practical purposes we have within the rectum the scirrhus and encephaloid cancers only. Let us consider with what these tumors each are likely to be confounded.

Symptoms. Cancer within the rectum begins insidiously and often gains so much development before the patient is aware of its significance that it is beyond hope of a complete cure. He supposes he has hemorrhoids or some other simple rectal ailment and dismisses it from his mind because he objects to an examination. The mild character of the symptoms during the early stages is peculiar to cancer situated above the middle of the internal sphincter, because the bowel has very little sensitiveness and considerable growth and even ulceration may exist without causing much uneasiness. But if the disease is below the sphincter there is great pain and the suffering itself may be of assistance in making an early diagnosis.

One of the first signs of trouble is a sense of fulness within the rectum or a feeling as if something is retained in the rectum after the bowels have moved. Later there is a tingling soreness after evacuation much the same as occurs ordinarily in healthy people after the passage of very hard fecal masses. Later both of these symptoms are associated with straining and bearing down when the sufferer has an evacuation and if the disease is near the anus this straining is sometimes violent.

With this sense of fulness in the rectum and the pain of each defecation there develops a slight morning diarrhea or sometimes there will be several exacuations of mixed feces and mucus. When the sphincter is invaded the rectal wall is stiffened and the sphincter muscle is weak and partial incontinence exists. When sloughing extends into the sphincter complete incontinence occurs and in the encephaloid cancer particularly a sanious discharge containing shreds of broken-down cancer tissue escapes more or less continually and excoriates the anus and skin about

the parts. This discharge has the odor of decayed flesh and once recognized is never forgotten. It is similar to the odor of cancer of the uterus.

The ulcerations of the cancer that produce the fetid discharge are of two kinds, that above the stricture and that of the growth itself. Ulceration developing above the growth differs from the cancerous necrosis in that it is superficial, has a clean, smooth base and low, even edges. It results from pressure of and toxins absorbed from the retained and hardened feces that are lodged in the dilated portion of the rectum immediately above the obstruction. When this obstruction is relieved these masses are found to be dry and of almost stony hardness and seem imbedded in the tissues and, if removed, leave ulcerated spaces beneath them. This form of ulceration we usually find in the scirrhus cancers.

In the encephaloid growth the ulceration is different. Early in the disease the normal mucous membrane covers the mass but the cancer soon breaks down. This degeneration may occur at one or several places simultaneously and the mucous membrane may be honeycombed with ulcerating spots through some of which the cancerous mass protrudes. Ulceration begins at the central or denser parts of the cancer and is not limited to the superimposed mucous membrane but invades the deeper structures and in some cases extends to neighboring organs. The bladder is frequently opened and cystitis or a urinary fistula produced, the urine escaping through the rectum while the feces are sometimes forced into the bladder and through the urethra, causing excruciating pain. This is one of the most urgent indications for colotomy. When the prostate or urethra are involved obstruction to urination begins. Smith records a case where the disease opened into the hip joint.

While the center is degenerating the periphery is advancing into new tissue. Around the edges the growth together with the inflammatory reaction raises the borders and gives the ulcer a crater-like appearance. The muscular tissue seems to have a greater resisting power and prevents somewhat the extension of the ulcerative process. The extension, however, progresses irregularly and creates a ragged edge. Gangrenous shreds of tissue are cast off and these have a very foul odor. As cicatrization occurs the rectum grows shorter until it may be only one-half to one-fourth its normal length. This contracting and the associated loss of fat about the parts produces the funnel-shaped anus so pathognomonic of cancer.

With this sense of fulness in the rectum and the pain of each defecation there develops a slight morning diarrhea or sometimes there will be several evacuations of mixed feces and mucus. Later in the encephaloid cancer a sanious discharge containing shreds of broken-down cancer tissue escapes more or less continuously and excoriates the anus and skin about the parts.

The encephaloid cancer is prone to bleed because it breaks down so easily and so early. When mucus and blood are expelled it shows the presence of ulceration. This condition is found in 90 per cent. of all cases of encephaloid growths. The hemorrhage occurs frequently and is usually slight but its persistence produces anemia and this is an element in hastening the end. In the soft cancers there may be a discharge of

free blood which rapidly weakens the patient but the scirrhus growths bleed only sufficiently to smear or streak the stool if they bleed at all.

Obstruction of the bowel is a variable symptom. Sometimes an advanced scirrhus cancer which has narrowed the lumen of the rectum until it will hardly admit the end of the finger will still cause the patient very little obstipation. When the obstruction is located in the lower end of the rectum or at the anus the feces may be ribbon-shaped or small pea-like balls or the frequent efforts at defecation may bring away small particles of feces mixed with mucus and pus. The clinical picture of the obstruction is similar to that of simple benign stricture and not in any way pathognomonic of cancer. The patient's history does not differentiate the disease and all depends on a physical examination which requires great care and delicacy. However, cancer in this region is of rapid growth and if a patient asserts that the stricture has existed for many years it is evidently not malignant, but it must be remembered that carcinoma may be engrafted upon any benign growth or ulceration.

In the encephaloid cancer the passage of the feces is not so frequently interfered with because ulceration begins early and the growth sloughs away enough to keep the passage open. Blood, mucus and pus mixed with the feces suggest a dysentery instead of the real disease. Ulceration into the surrounding tissues with the production of an abscess and fistula allows the extravasation of feces and often a large dissecting abscess.

Examination. The digital examination is of great value in all rectal strictures and in cancer it is absolutely necessary. Mikulicz found three-fourths of his cases of scirrhus cancer had formed a stricture when first seen. Gussenbauer estimates that 65 per cent. of all rectal cancers are of this variety. These cancers grow lengthwise of the bowel very slowly and rarely involve more than two inches.

Cancers high up in the rectum and in the sigmoid are the most difficult to diagnose and have been repeatedly mistaken for diseased ovary or other pelvic tumors.

Encephaloid tumors contribute 15 per cent. of the rectal cancers. They break down very early and with few exceptions have reached this ulcerative stage by the time they are seen by the physician. By palpation irregular masses appear to have been broken off roughly and the raised edges of the ulcer give it a crater-like appearance. The finger being well anointed and inserted feels this rough, irregular edge and then passes beyond the constriction into a wider channel where frequently masses of hardened feces are found. Every possible care must be taken in passing the finger through the obstruction when it surrounds the rectum, especially if near the peritoneal surfaces, for fear of tearing through the friable wall and entering the abdomen. The necrosis may leave a very thin partition at some point or the ulceration in the bowel above the obstruction may be very deep. The finger must never be pushed hurriedly through a carcinomatous stricture and even soft bougies must be used with great caution. Numerous cases of rupture and sudden death have resulted from carelessness in making an examination.

Differential diagnosis. The scirrhus cancer must be differentiated from other fibrous masses within the rectum.

The congenital stricture is frequently unobserved until the child eats solid food and the stools are formed but it is almost always found before puberty. The symptoms are those of obstruction in an otherwise healthy child and of long standing whereas the carcinoma does not occur until adult life.

Benign fibrous stricture is the most difficult because sometimes it is impossible to differentiate although its surface and edge are smooth in contrast with the cancer, which is irregularly nodular and rough. Of course the history of the case is entirely different.

The encephaloid cancer may be mistaken for the benign adenoma or papilloma which occur quite frequently, and are important because they are sometimes very difficult to diagnose and so frequently carcinomatous changes occur in the benign tumor if it is left *in situ* or a cancer recurs when the apparently benign adenoma or papilloma has been removed. These tumors are sometimes attached by a pedicle and even if they have a broad base it is never indurated. Inasmuch as these tumors are so liable to contain malignant cells or to develop malignancy later I never place much credence in laboratory findings of bits removed from the tumors because part of the tumor may be benign and another part be malignant.

Syphilitic lesions in the rectum may be mistaken for cancer. Particularly the encephaloid cancer. Chancres are very rare above the ano-rectal line. Mucous patches occur about the same time as the macular eruption on the skin. Both of the lesions have a tendency in ulcerating to follow the blood-vessels and lymphatics so that the ulcer spreads upward rather than laterally. There is considerable discharge of that peculiar chancre smell. It is very different from carcinoma.

Gummata begin in the connective tissues and if seen early the mucous membrane is free above the tumor, which is round and elastic. They may be as large as an orange. Later they undergo fatty degeneration and ulcerate and the cicatrix may cause stricture.

In the proliferating proctitis fragile villous teats hang from the mucous membrane. There is an abundant discharge of muco-pus. The granulating mass is soft and its base is limited to the mucous membrane but does not infiltrate below. The growth spreads all over the rectum but is not limited to one part.

This gives the reader a general picture of the clinical features of cancer as found in the lower part of the large bowel, and will assist in a clear and early comprehension of this dread disease. What course of treatment shall be adopted depends upon many things and the surgeon must decide whether his treatment shall be removal with a hope of lengthening life and perhaps curing the patient, or shall it be simply alleviation of suffering? If the entire mass and sufficient perirectal tissue can be removed, the prognosis is relatively good, but in advanced cases the prognosis is bad regardless of the operation.

438 East Forty-Sixth Street.

ILLINOIS MEDICAL JOURNAL

THE OFFICIAL ORGAN OF THE ILLINOIS STATE MEDICAL SOCIETY

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MARCH, 1911

THE SUPREME COURT AND THE ITINERANT VENDER

On Feb. 25, 1911, the Illinois Supreme Court rendered a decision declaring invalid that provision of the medical practice act which requires itinerant venders of drugs and nostrums to pay a license of $200 a year.

"The majority of the court holds that the law is invalid because it undertakes to discriminate between the established dealer in medicines and the one who travels about. No such distinction, the court holds, can be forced under the constitution. Justices Cook and Dunn file a spirited dissent in which they hold that putting a heavy tax on itinerant venders of drugs and nostrums is a proper exercise of the police power of the state. Even if the license were made prohibitory, they say, it would not do violence to the right of the state to protect the health of its citizens.

"The decision is given in the case of the State Board of Health against J. A. Wilson. The minority opinion refers to the fact that the defendant was selling a remedy which was extravagantly advertised as a 'cure all,' and insists that the board of health ought to have authority to curb the operations of such venders."

Not the least interesting part of this court ruling is the fact that in the Bulletin of the Illinois State Board of Health for October, 1910, appears the decision of the court dated Oct. 28, 1910, in which it appears that the act was sustained *in toto*. Much credit was taken by the secretary for the action of the court. Among others congratulating the

secretary was one B. D. Harison of Michigan. On calling up the clerk of the supreme court, we learn that the decision of February 25 has to do with the same case, namely, the State Board of Health vs. J. A. Wilson, and that the court had reversed itself on a further hearing of pleas by the interested attorneys. We withold further comment on the peculiar circumstances surrounding this decision, and in the meantime wonder where the State Board of Health comes in and what shall be done with the congratulations showered on it for securing the widely heralded decision of October 28.

LEGISLATIVE MATTERS

In order that our members may be kept informed regarding the status of the legislation affecting the medical profession, we are issuing the March JOURNAL early, and Dr. L. C. Taylor, chairman of the Committee on Legislation, has furnished an abstract of all bills which have been introduced since our February issue, and will make recommendation of what action should be taken by the individual and component societies of all state organizations.

With reference to the bill requiring medical examination prior to the issuing of a marriage license, we might say that this matter has received favorable consideration at the hands of the Indiana legislature, and is very likely to become a law. At least five states are considering the subject and of course Illinois will not be behind in paying attention to this very important matter. The following doggerel contributed to the Chicago *Tribune* gives a line on the attitude of the ordinary layman regarding this sort of legislation. It only serves to emphasize what we mentioned in our last issue, viz., that the position of the profession should be clearly understood and that no monetary motive should influence us in the passage of the bill.

DAN CUPID REGISTERS A KICK

[Indiana Legislature Passes Bill Requiring Marriage License Applicants to Secure Physician's Health Certificates.—Newspaper headlines.]

"In that romantic, grand old state,
Who ever thought I'd meet such fate?
Put on the shelf and virtually retired!
I don't know how I'll stand the shock
When ousted by the sawbones doc,
And told, 'Get out, you little Dan; you're fired!'

"Suppose two young things take a walk,
Dive deeply in the soft stuff talk,
And he declares she must be his for life.
He'll lose his wild, ecstatic thrills
When told by crude old Dr. Pills:
'Yer spavined, kid; fergit about that wife!'

"That law I never will obey!
I'll get around it some old way,
And keep on shooting arrows just the same.
Such laws are nearly always broke;
They're like that other funny joke
That 'rules' blind tigers and the gambling game." Q. S. A.

We have been asked to call the attention of our members to a bill for an act To Provide for the Creation of Public Recreation Districts, in which some of our members are interested, and which undoubtedly has many points of value to those citizens desiring to provide suitable grounds, buildings and apparatus for the purpose of physical culture of the rising generation. This bill was introduced in the House by Mr. Pearson, on January 25, and was referred to the Committee on Parks and Boulevards. The intent and object of this bill is to influence and promote healthful indoor and outdoor recreation for the people of the district organized. Dr. C. E. Earle of Des Plaines has issued an appeal on this subject and will be glad to confer with any one interested.

Another matter of great importance is the movement looking toward the rehabilitation of the medical department of the University of Illinois. This movement has been endorsed by a large number of physicians and several medical societies, and we believe will commend itself to all those interested in the uplift of the profession.

President James has sent out a large number of letters to individuals, and we trust that there will be a universal response to his letters. Besides those mentioned, there are a number of bills in which the profession should take an active interest, and they should also be watchful of the newspaper columns in the next few weeks for surprises in the way of legislation of all sorts. The senate has passed a joint resolution calling for a final adjournment on April 6, and should the house concur, what legislation is attempted will be sprung suddenly, and there may be an attempt to rush it through without giving those interested an opportunity to file objections. As announced in our February issue there is universal belief that a great deal of politics will be attempted by the various gentlemen interested in passing or failing to pass bills at this session of the legislature. At any rate we warn our members of the extraordinary state of affairs, and trust that our officials will not be caught napping should anything unusual be attempted.

LEGISLATIVE BILLS

47th G. A. HOUSE BILL NO. 55 1911

Introduced by Mr. Shepherd, January 24, 1911.

Read by title, ordered printed and referred to Committee on Live Stock and Dairying, when appointed.

A BILL

For an Act to prohibit the establishing and enforcing of the Tuberculin test for Dairy animals by any city, village, incorporated town, county or other corporate authority in the State of Illinois.

SECTION 1. *Be it enacted by the People of the State of Illinois, represented in the General Assembly:* That it shall be unlawful for any city, village, incorporated town, county or other corporate authority in the State of Illinois by ordinance, rule or regulation other than may be established by the law of this State to demand, fix, establish or require the

Tuberculin test to be applied to Dairy animals as a means or measure of regulating and purifying milk, skimmed milk, cream and Dairy products of said animals in any manner whatever, and every such ordinance rule, by-law or regulation heretofore or hereafter passed, demanded, fixed, established or required by any such city, village, incorporated town, county or other corporate authority other than the State of Illinois, is hereby declared to be void and of no effect.

47th G. A. SENATE BILL No. 235 1911

Introduced by Mr. Ball, February 23, 1911.

Read first time, ordered printed and referred to Committee on License and Miscellany.

A BILL

For an Act to amend an Act entitled, "An Act to regulate the practice of medicine in the State of Illinois, and to repeal an Act therein named;" approved April 24, 1899, in force July 1, 1899, by adding two additional sections thereto to be known as Sections 2a and 6a.

SECTION 1. *Be it enacted by the People of the State of Illinois, represented in the General Assembly:* That an Act entitled, "An Act to regulate the practice of medicine in the State of Illinois, and to repeal an Act therein named;" approved April 24, 1899, in force July 1, 1899, be amended by adding two additional sections thereto to be known as Section 2a and Section 6a.

Section 2a. The State Board of Health shall require that every applicant for a license to practice medicine and surgery in all their branches, in the State of Illinois (excepting only those physicians who may be entitled to a license under Section 3a of the Act to which this Act is an amendment) shall present proof satisfactory to said Board that he is a graduate of a medical college in good standing, as may be determined by the State Board of Health, and pass, before said Board, an examination embracing those general subjects and topics, a knowledge of which is commonly and generally required of candidates for the degree of doctor of medicine, by reputable medical colleges in the United States; *provided*, that the State Board of Health may, in its discretion, admit to examination a student who has completed, in a medical college determined in good standing, the course of instruction required by the rules of said Board in medical colleges determined in good standing, and who has passed the examinations of said college, but has not received a diploma. And if said student pass the examinations of the said Board it may issue to him a limited license authorizing him to practice medicine and surgery in a hospital approved by said Board and in no other place whatsoever in the State of Illinois, which limited license shall remain in effect for a period not exceeding eighteen months from the date thereof, and the State Board of Health may then issue to the applicant the regular permanent license of the Board without further examination or fee, on condition that the applicant present a diploma from the medical college

in which he had completed a course, as prescribed by the rules of the said Board, previous to the issuance of the limited license hereinbefore mentioned, and otherwise complies with the requirements of the Board and with the provisions of the Act to which this Act is an amendment.

Section 6a. The State Board of Health shall have power to revoke, for the causes set forth in Section 6 of the Act to which this Act is an amendment, not only the certificates provided for in the said Act to which this Act is an amendment, but also the certificates of practice medicine issued in pursuance of and under the provisions of "An Act to regulate the practice of medicine in the State of Illinois;" approved May 29, 1877, in force July 1, 1877, and "An Act to regulate the practice of medisince in the State of Illinois;" approved May 29, 1877, in force July 1, 1877, and "An Act to regulate the practice of medicine in the State of Illinois;" approved June 16, 1877, in force July 1, 1887; *provided,* that no certificate shall be revoked until the holder thereof shall be given a hearing before the Board.

47th G. A. SENATE BILL NO. 140 1911

Introduced by Mr. Brown, February 1, 1911.

Read first time, ordered printed and referred to Committee on Sanitary District Affairs.

A BILL

For an Act to regulate the practice of optometry in the State of Illinois.

(This is a counterpart of the bills which have been introduced during former sessions of the legislature and has uniformly met with defeat. It provides that a board of five members shall be appointed by the governor to carry out the provisions of the act.)

SENATE BILLS INTRODUCED

S. B. 235 (Ball) amends the act regulating the practice of medicine to allow applicants, who are not graduates of a medical college, to practice medicine and surgery in an approved hospital for eighteen months. He may then be given a permanent license without further examination, provided his college issues him a diploma.

S. B. 246 (Curtis) amends the law in relation to coroners, to give them entire charge of all unnatural deaths. Only coroners are authorized to issue a death certificate. Violation of this act is punishable by a fine from $25 to $5, or by imprisonment of thirty days or both.

S. B. 247 (Curtis) increases yearly salaries of coroners as follows in addition to their fees: In counties more than 25,000 population, $600; 40,000 population, $850; 50,000 population, $1,000; 60,000, $1,250; 75,000 population, $1,500; 90,000 population, $2,500. Coroner is allowed $5 per day and expenses in holding inquests, in addition to five cents per mile mileage and is authorized to employ a physician in such cases at a salary of from $10 to $25 for such cases.

STATE BOARD OF HEALTH FEES

On page 77 in the January issue of the JOURNAL we called attention to the fees collected by the Illinois State Board of Health, for which no accounting has been made to anybody of the amounts collected and how they were expended. We therefore were not at all surprised when the attorney general on February 16 rendered a dcision which put the board out of business as far as the expenditures thus irregularly collected was concerned. The board was found to be in the same predicament as the game department, the grain inspection department and a great many others which have been for years acting contrary to law and common sense in collecting and spending money. When this whole matter clears up it may be possible to find out how much the board has been handling each year in this manner.

NOTICE

WANTED: The following numbers of the ILLINOIS MEDICAL JOURNAL, for which a liberal price will be paid:

Volume 2, June and September, 1900.

Volume 4, February, No. 9, 1903.

Volume 5, July, September and December, 1903; April and May, 1904..

Volume 6, July, August, September and November, 1904.

Volume 7, February, 1905.

Volume 8, August, October, November and December, 1905.

Correspondence

MORE ABOUT CHRISTIAN SCIENCE

CHICAGO, Feb. 20, 1911.

To the Editor: Relative to Dr. William J. Robinson's special article appearing on page 215 of the February issue of the ILLINOIS MEDICAL JOURNAL, permit me to state my experience of twelve years ago. At that time I was employed by one of the trustees of a prominent Christian Scientist church[1] in this city, and thereby became familiar with some of their system. Before proceeding let me repeat two paragraphs of Dr. Robinson's article: "We are pictured as ignoramuses, grafters, butchers, anxious to operate whether there is necessity or not, drug dopers, etc., etc. We are denounced as a trust, monopoly, and any attempt of ours to organize to pass laws protecting health, is characterized as an attempt at class legislation, a desire for special privileges, inspired by our fear of the competitor, by our fear of the superior skill of our irregular rivals." "It is time that the medical profession change its tactics and assume a wideawake militant attitude. It is time that we actively attack error wherever it shows its head. By reading papers before lay audiences

1. Frederick W. Peabody, LL.B., of Boston, has written an exposé entitled "The Religio-Medical Masquerade," well worth the reading by physicians.

(done in Chicago every Saturday evening), by participating in discussions, by writing to the newspapers, by refuting the false arguments of false prophets wherever they appear, we can do much toward destroying the influence of the quacks and the irregular cults, etc."

During my employment with this prominent business man, there were several attacks made on the Christian Scientists, and he was consulted about all of them. I learned that "The Sentinels" were a selected permanent paid committee whose entire duty it was to do as Dr. Robinson has stated, to attack error, to refute harmful statements, etc., whenever and wherever found, whether from the church members or from the various press clipping bureaus employed to send them such adverse news. They did this by the newspapers, magazines, and their official publications. Consequently all outsiders were ignoramuses, "not knowing whereof they spake. Nobody can understand Eddyism who is not in the Science."

This explains their dogmatic attitude to strangers to the cult, who undertake to criticize it.

The various local societies, the state societies, and the national association would do well to create such a "sentinel committee" for this express purpose.

The local members could draft papers, which should be read to their local or county society, and after proper corrections it could be ordered to be published. Or, if of great importance, it should be sent to the "national sentinels" for more complete data and widespread publication.

The old maxim, "large bodies move slowly," is bad for news that must be refuted while fresh in the public mind. Emergency surgery, quick action, is a necessity in this work, if the greatest benefits are to be derived. Repair the damage before sepsis, necrosis or deformity become deep seated.

Hoping these suggestions may help to agitate the question, I am,

Respectfully yours,

_____,

Englewood, Chicago.

ROSWELL, NEW MEXICO, Feb. 18, 1911.

To the Editor: I have in preparation for the columns of THE JOURNAL an article dealing with vaginal hysterectomy by the clamp method, and would deeply appreciate reports from those who feel an interest in this subject. It is needless to say that the fullest credit will in all cases be given. I am especially desirous of hearing from operators of modest experience, those who perhaps have from one to a dozen unreported cases, with suggestions as to improved technic and candid observations on unsuccessful cases. By the term "clamp-hysterectomy" I mean an operation where a clamp or clamps are the main reliance for control of bleeding from the broad ligaments, the occasional application of a ligature to some especial point not invalidating the principal idea.

HOWARD CRUTCHER.

COUNTY AND DISTRICT SOCIETIES

COOK COUNTY

CHICAGO MEDICAL SOCIETY

Regular Meeting, Jan. 4, 1911

A regular meeting was held Jan. 4, 1911, with the president, Dr. Alexander Hugh Ferguson, in the chair.

The President:—I am sure Dr. Ravold needs no introduction to this audience. He comes by special invitation to address us on a most interesting subject.*

Dr. Ravold:—I wish to thank the secretary and members of this society for the honor conferred on me by this invitation.

The paper was discussed by Drs. William L. Baum, Julius Grinker, George F. Suker, K. A. Zurawski, and in closing by the author of the paper.

The President:—As announced, we have before us again the matter of the division of the fee. We have talked this over and over time and again, but still it comes out every so often, and in view of the statements which have recently appeared in the public press, it was thought that we should have it discussed here this evening. So, any of you who have anything to say, may say it.

Dr. Julius Grinker:—Inasmuch as this entire subject has, as the president says, been before us so many times, I can hardly see that we need take any more of our time discussing it, and I therefore move this resolution:

Resolved, That the Ethical Relations Committee be requested to investigate the case of anyone who is reported to be splitting fees or otherwise violating the well-known ethical laws of our society, and deal with them in accordance with our constitution. Carried.

Adjourned.

Regular Meeting, Jan. 11, 1911

A regular meeting of the Chicago Medical Society was held Jan. 11, 1911, with the president, Dr. Alex. H. Ferguson, in the chair.

Dr. John M. Patton read a paper on "The Treatment of Delayed Resolution of Pneumonia."

This paper was discussed by the president and the author of the paper.

Dr. Julius C. Hoag read a paper on "The Relation of Vasectomy to Eugenics."

The paper was discussed by Drs. Frank Lydston, T. J. O'Malley, K. A. Zurawski, and in closing by the author.

Adjourned.

CHICAGO MEDICAL SOCIETY AND CHICAGO NEUROLOGICAL SOCIETY

Joint Meeting, Jan. 18, 1911

In the absence of the president, the meeting was called to order by the secretary, Dr. George F. Suker.

Dr. Suker:—This is the occasion of a joint meeting of the Chicago Medical Society and the Neurological Society. Dr. Ballenger will present some interesting cases which he has, after which Dr. D'Orsay Hecht will assume the chair and introduce the speaker of the evening. Dr. William L. Ballenger demonstrated cases of carcinoma of the larynx; partial and complete extirpation.

Dr. D'Orsay Hecht:—Members of the Chicago Medical and Neurological Societies: This, as you are aware, is the occasion of a joint meeting. We have had one such annually for many years. On behalf of the Neurological Society, I bid you welcome. I think, as neurologists, we need offer no apology for having selected for discussion the psychoneuroses, a subject which in late years has had

* Dr. Ravold's paper on "Heredo-Syphilitics and Their Detection" appears on page 269. The discussion follows the paper.

an extraordinary fascination for all students in our field of work. Time was when the neurologist was almost exclusively concerned with the organic diseases of the nervous system. As concerns this, there has come a reversal of form, and now the pendulum has swung in another, in an opposite direction, and the neuroses, so called, have come into their own.

The conception of the neuroses—that group of nervous disorders supposedly without demonstrable structural change in the organic units of the nervous system—has of late undergone what we may safely call a radical revision. The earlier classification, a rather loose grouping of neurasthenia, hysteria and hypochondriasis, seems no longer tenable. The tendency now is to recognize actual neuroses and psychoneuroses. For this more satisfactory classification we are indebted to a small coterie of profound and earnest thinkers, chief among whom are Breuer, Freud and Jung. To Professor Sigmund Freud of Vienna belongs the distinguished merit of having produced a new theory relating to these nervous disorders, one based on careful observation and searching inquiry. The Freudian doctrine, as it has come to be known in a most extensive and worthy literature, declares the underlying potentitial factor in the development of every neurosis to be of sexual nature.

The program this evening, therefore, contemplates a discussion of the genesis of psychosexual impressions and repressions, their specific etiologic influence, the rôle of psychoanalysis in the interpretation of the symptoms and as a therapeutic agent.

For the widespread elucidation of Freud's work, which appears in its original form almost entirely in the German literature, we English-speaking physicians are indebted to our guest of the evening.

We of the Neurological Society feel that it is our special good fortune to have with us this evening a pupil and co-worker of Freud, a profound student in the field of philosophy, psychology and medicine; therefore admirably qualified to speak with authority about this more or less new order of things in our conception of the neuroses.

It also affords me much pleasure to add that we shall hear from Drs. Singer and Read of the application of some of this work in our own State Psychopathic Institute. We therefore acknowledge our obligation to these gentlemen, who, through their initiative, place us again in the forefront of this work as it may find application among the insane.

Ladies and Gentlemen, I take great pleasure in presenting Dr. Ernest Jones, Associate Professor in Psychiatry at the University of Toronto.

Dr. Ernest Jones, M.R.C.P. (Lond.), Toronto, Ontario, Associate in Psychiatry, University of Toronto; Director of the Ontario Clinic for Nervous and Mental Diseases, then delivered the address on "Reflections on Some Criticisms of the Psychoanalytic Method of Treatment."

Dr. Hecht: Inasmuch as these papers are all so closely related, I shall assume that it is the common desire to reserve the discussion until both have been read. I regret, however, to be obliged to announce that Dr. Read is incapacitated through illness and cannot be here, therefore it devolves upon Dr. Singer, Director of the State Psychopathic Institute connected with the asylum at Kankakee to present this portion of the program. I take great pleasure in introducing to you, Dr. H. Douglas Singer of Hospital, Illinois.

DISCUSSION

Dr. Sydney Kuh:—It is my intention to add somewhat to the paper read by Dr. Jones; in other words, to give some additional criticisms of the theories of Freud. I have no quarrel with the psychonalaytic methods practiced for such purposes as those spoken of by Dr. Singer. I think that the abstract analysis which he read to you clearly indicates the value of that method in the study of certain mental anomalies. I regret, however, I cannot share his optimism so far as the possible therapeutic effects of that method of treatment is concerned. But I have a quarrel with Freud's theories, and I do not believe that Dr. Jones in his

paper has mentioned all of the possible criticisms. I do not believe the subject could have been presented in a better and clearer way than Dr. Jones has done, and I fully realize the difficulties in trying to criticize what he has said.

First of all, before going into a methodical criticism of the matter, I should like to take up one point which was mentioned in Dr. Jones' paper, namely: He attributes the unwillingness of those who do not believe in the Freudian theory and of those who are unwilling to take it up, to the fact that they are too prudish to discuss matters involving sexual questions, and he quotes as an instance of that tendency the disinclination of certain individuals to accept syphilis as an etiologic factor in tabes. With all due respect to Dr. Jones, I wish to say that this comparison which has been made by others in connection with this very question is a most unfortunate one, because these same individuals who denied that syphilis was an etiologic factor in tabes often in the same paragraph emphasize the importance of masturbation and sexual excesses as etiologic factors. However, that is ancient history. Let us come down to the present day.

There is nobody living to-day perhaps who is more active in that new science termed sexology than is Naecke. What Naecke has not written on the sex topic is hardly worth printing, and still Naecke only recently protested energetically against the Freudian theory, and declared himself, although not by any means prudish, utterly unable to accept the theory of Freud. My objection is to this part of the Freud theory. He claims that hysteria and psychoneuroses, so called, are the results of some sexual trauma in the broadest sense of that term. The influence attributed to sexual matters in the production of nervous phenomena is anything but new. In fact, it is a distinct return of what our forefathers were taught. Hysteria, of course, derives its very name from the fact that it was supposed to have its origin in sexual disturbances. True enough, but those who thought hysteria was due to some anomaly in the uterus or to unsatisfied sexual appetite never went as far in the definition of what constitutes the sexual element as does Freud. With Freud sexuality becomes so broad that it includes practically every human activity, and that is why it is possible for Freud to demonstrate in every instance that there has been some sexual trauma. I cannot follow him when he asks us to see in the sucking of the thumb of the infant an attempt to gratify an unconscious sexual craving. I cannot follow him when he tells us that enuresis in children is in the vast majority, if not in all cases, the result of sexual stimulation, even in the youngest children. (Let me say here that these examples which I am quoting are not taken from memory. They are taken from a work which has appeared within the last month or so, written by one of Freud's pupils, who says in the preface that the book was read and approved of by Freud, which amounts practically to Freud's endorsement of the statements therein.[1])

I cannot follow Freud when in his interpretation of dreams he goes so far as to say, for instance, that to dream of a room ("Zimmer," in German) involves a sexual element because "Frauenzimmer" in German means woman. I cannot follow him when he says that to dream of an umbrella involves a sexual element, because it symbolizes an unfolding, as he puts it, which occurs with the erection of the penis.

Originally, Freud's theory was that the cause of the psychoneuroses and hysteria was a sexual trauma pure and simple. He did not go beyond that originally. In the course of years he has been compelled to modify this theory. He says—and he is perfectly correct—that no scientist need be ashamed to modify a theory; any man who is honest will often be compelled to do that, but, mark you, how in correcting his theory he has constantly weakened it. The first modification to be made was this: that the sexual element alone is not sufficient to produce hysteria or psychneurosis, but it takes something additional. He finds now a toxic element. Again, according to his early writings, the trauma which produced the disturbance usually occurred at about the age of puberty. It was known long before Freud was made famous through his writings that in very many cases—in the vast majority of cases—of hysteria or psychoneuroses, marked anomalies

1. Freud's Neurosenlehre, Dr. Edward Hitschmann, 1911.

existed very early in life, and that before the age of puberty there were distinct evidences of an abnormal mental state. The neuropathic predisposition showed itself before the age of puberty; consequently, Freud is again compelled to modify his theory and to say, no, I was wrong when I said the sexual trauma occurred at the age of puberty; it occurred at an earlier period, long before puberty, and that he may have something to base this modified theory on, he is compelled to see in the sucking of the thumb and other childish acts the evidence of an ungratified sexual instinct. Now, the sucking of the thumb was explained long before there was ever a Dr. Freud, and it was explained in a most satisfactory way. Still later there is another modification of his theory. In drawing so broadly the lines of what constitutes the sexual element or a sexual trauma, Freud found himself facing this proposition: if what he designates as sexual trauma is really that, there is no individual who has not early in life suffered a sexual trauma. Again, a modification of the theory becomes necessary, and Freud is driven to acknowledge that back of it all as the real cause of hysteria and of these psychoneuroses is what he terms the psychosexual constitution. In other words, he goes back to the thing we knew long ago, that in those individuals who by heredity are defective there is very often, perhaps in the majority of cases, a certain degree of anomaly in the sexual life. Freud asserts that one of the important sexual traumas, the one which is very often responsible for the production of these disturbances, is excessive masturbation. That is distinctly a step backward. Take the text-books of thirty years ago on mental and nervous diseases and on the pages devoted to the discussion of the etiology, you will find excessive masturbation mentioned as one of the important factors. Long before Freud began to teach we learned that excessive masturbation, as a rule, is not the cause, but the result of nervous disorders. That is the same neuropathic predisposition which leads to excessive masturbation which later on is responsible for the development of the psychoneuroses.

Again, he claims that premature ejaculation may constitute a trauma of this kind. Of course, the same thing applies to that. Premature ejaculation is not a disease, but a symptom. It is the result of a disease in the majority of cases, just as is excessive masturbation. In some of his writings Freud explains the development of these troubles by assuming a sexual hyperesthesia, his psychosexual constitution. In other parts of his writings he wants us to believe that the average hysterical woman is sexually anesthetic. I will simply appeal to the experience of anyone of you who has to do with hysterical women, and I presume you all have, and it will not be necessary to discuss that theory any further.

Now, if we analyze all this we will come to this: the fundamental thing is not what we call the neuropathic predisposition, but we have a new name, namely, the psychosexual constitution. Taking the definition of sexual life so broadly that it involves practically every human activity, there is absolutely no trouble in finding with this definition that some sexual factor has been active in causing certain symptoms. It is not, however, possible, so far as I can see, according to the latest modified Freudian theory, to see in sexual trauma the real cause; but for the real cause he goes back to the same old thing we have known for a long time, only under another name.

Dr. Jones has spoken of those who think that possibly suggestion may have something to do with the result of psychoanalysis with considerable contempt. So do the others who believe in the Freudian theory. They simply ridicule the idea, and still Freud himself says that when in a case of this kind you wish to make a psychoanalysis it behooves you to emphasize to the patient the necessity of mentioning and discussing anything and everything that comes into their mind, though it be embarrassing. When you are addressing a woman, if that is not suggesting to her that sexual matters are to be brought forth, then I do not know what suggestion means.

Now, it has been the history of hysteria and the allied neuroses that every little while some new method of suggestion comes up—hypnotism, mental therapy,

electricity, hydrotherapy, rest cure, work cure, etc., and each and every one has its enthusiastic advocates, and each and every one has its brilliant results. It is new, the man who uses it thoroughly believes in it, and his enthusiasm, consciously or unconsciously, is transmitted to his patients, and his patients are cured.

From what I know of the subject—and I will confess my knowledge is based largely on reading, although I have had some practical experience with the method—the psychoanalytical method, so far as it applies to hysteria and all the psychoneuroses, depends entirely for its results on suggestion, in spite of what Dr. Jones may say, and I believe that as a method of suggestion it is not the easiest and it is not the best one.

Dr. Jones himself has spoken of the possible dangers. He has said that any method may become dangerous in the hands of those who are unskilled. He has, in a measure, confessed that it is a measure that may do harm even in the hands of those who are skilled. That is true. We have nothing in therapeutics which we can use without a certain amount of danger. The question is whether the dangers involved by the use of this or any other therapeutic measure are possibly greater than the dangers involved by permitting the disease itself to continue. From my limited experience, I should be inclined to say that psychoanalysis, in some cases, at least, is liable to lead to symptoms, to manifestations, which are very much more serious, very much more disagreeable to the patient, than the symptoms which we attempt to remove. Now, if this is true, as Freud himself acknowledges, that the sexual trauma is merely the exciting cause, that the true cause is the psychosexual constitution, then logically psychoanalysis can do absolutely nothing beyond removing the exciting cause. It cannot possibly get at the root of the evil, namely, the psychosexual constitution, which existed long before sexual trauma acted on the patient. In other words, psychoanalysis will do for a patient of that kind just exactly what any other suggestive measure will do, if properly used, namely, it will remove symptoms. It will not cure the disease, and under these circumstances, and in view of the fact that I have had in one instance, which I cannot describe in detail here, an exceedingly disagreeable and unfortunate experience with the psychoanalytical method, I feel it is not a safe method of treating cases of hysteria or cases of psychoneuroses.

Dr. L. Harrison Mettler:—I desire to speak on two points only, without elaborately arguing either. It seems to me that the preceding discussion resolves itself into two distinct and widely separated heads. The first concerns merely the question of the examination of mental phenomena, the validity of psychoanalysis; the other the question of this examination always leading into the psychosexual sphere, as Freud intimates.

The theory that psychosexuality is the dominant factor in all the activities of life is about on a par with the utilitarian theory long ago promulgated by a certain school of English philosophers. As there are many people who do not think that mere utility is the only motive force behind every human act, good and bad, so there are many who believe that a large, perhaps the larger, part of human activity is absolutely independent of any sexual motive or relation. There is a large class of philosophic thinkers who hold that there would be no art, no science, no financial or commercial activity in the world if it were peopled by human beings of one sex or the other. They argue that in its last analysis all human performances resolve themselves into more or less obvious psychosexual manifestations. They insist that the sexual impulse, with its elaboration into the broadest conception of love, is always the conscious or unconscious factor that guides the human will, and that if this motive force were removed from the world there would be little left for human beings to struggle for. I for one do not accept so narrow a philosophy of life. I do not understand that Freud himself does, though some of his followers seem to attribute such a view to him. Admitting, as we all do, the importance and insistence of the sexual life in the affairs of human beings, I can agree with Freud, if I understand him correctly to say that in the psychoneurotics which he has examined the analysis of their

submerged mental activities invariably leads more or less into the psychosexual sphere. My own observations compel me to acquiesce in this view when expressed with these limitations. Were Freud to teach some of the things that have been attributed to him here to-night by Dr. Kuh, I would most emphatically decline to accept his teachings, but Freud does not seem to me to teach so gross and coarse a psychosexual dominance as that. Moreover, such teachings, which some have attributed to him, if promulgated by Freud, would, I think, have long ago awakened deadly skepticism as to his whole psychoanalytic work. So much for the first point.

Now, as to the question of the validity and usefulness of psychoanalysis, I think we are to be congratulated on having the subject presented so forcibly and clearly to us by Dr. Jones. I see in psychoanalysis nothing but the same advance that is going on in all other departments of medicine, namely, the closer study of our clinical problems along lines of physiology. Psychology, as Fiske says, is the science of sciences because the validity of all the other sciences depends on the validity of our interpretations of mental phenomena. Psychology is a branch of biology, especially physiology. The study of mental manifestations is leading us into a broader conception of psychiatric phenomena, just as a study of physiology when disturbed by microorganisms has given us a broader conception of pneumonia and typhoid fever. As each organism reacts in its own way physiologically to any noxious influence that may come in contact with it, so in the psychic sphere does each individual react differently from every other individual. Hence, as some one has said, each man, when insane, has his own insanity. The analysis of this reaction is what psychoanalysis attempts to make. It is not enough nowadays to say a man is insane because perchance he appears different in his acts and thoughts from the majority of his fellows. The grounds for his peculiar acts and thoughts must be determined before sanity or insanity can be pronounced, and these grounds it is the purpose of psychoanalysis to help to determine in each individual case. Formerly in psychiatry we have been too prone to depend on the symptoms *per se* and to establish classifications on mere groups of symptoms. Under the psychoanalytic method the symptoms are analyzed and accounted for. This is a decided advance in psychiatry, and commends the splendid work done by Freud, Jung, Jones and others.

Dr. Hugh T. Patrick:—Although without personal experience, I have studied this subject considerably, and fully agree that it is a most interesting one and worthy of serious consideration. There are a few rather obvious and elementary conclusions that have come to me since I have been thinking about this matter of psychoanalysis, observing my cases in the light of its claims, and talking with those who have been using it. First. In all cases of the psychoneuroses, as of other diseases, the more full and complete the information I can get of the patient and his disorder, the better. It has been my experience in caring for people carrying the burden of the psychoneuroses that the more painstakingly I go into the history of their lives, the more careful I am in getting ordinary clinical information; the more untrammeled I allow myself to be in burrowing into their sexual, social and general mental lives, the better position I am in to handle them. Because in handling a psychoneurotic patient we must get back to the problems which disturb that individual.

Second. It is clear that when with these ordinary methods of investigation, of inquiry and listening to the patient, I have been able to make plain to him that certain events or experiences in his life, apparently unimportant, have an important bearing on his present sufferings, I am almost certain of good results. When it has been made obvious to the patient that symptoms which are strange and disconcerting and alarming have had their origin in certain very early happenings in his life, we have already proceeded a long step in the right direction.

Third, I am fully convinced that the things which are, in the broad, sexual, make up a considerable proportion of the observations and experiences and thoughts and rudimentary conclusions of a child. I think if some of us would take time enough to stir up childish memories of ourselves and others and care-

fully to observe children, we would come to the conclusion that children notice the matter of the movement of the bowels, the distress of a full bladder and the relief following urination, the difference in the sexual organs of a little boy and a little girl and similar things that go with the acquiring of knowledge by observation. Not that they make a very profound impression on their minds at the time, but they do notice these things and there is a reaction to the mental impression and sometimes an emotional reaction.

Fourth. A good many years ago (before the days of the psychoanalysis), in a casual conversation, a very competent, thoughtful and well-balanced physician startled me by saying: "Of course, the sexual element is by all odds the most influential thing in life, especially in our present state of social existence." I must confess that I had never thought of it very much. Since then I have let that thought germinate and have taken every opportunity to see whether it was well founded, and I think that beyond a doubt it is. I am thoroughly convinced that our sexual relations (not meaning the sensual, but the sexual sphere in the broad sense of the word, from the absolutely good to the absolutely vile) are probably the influence of second importance in our lives. Life, fundamentally, is influenced especially by two primary laws: the law of self-preservation first, and the sexual laws second. The more I study patients with this in mind, the good and the bad, the more I am convinced that this is true.

Fifth: There is no conflict of all the conflicts that we encounter throughout our lives more trying than the one which every person goes through between what is our inborn, natural birthright of desire and passion and the beliefs, tenets and teachings of society as organized to-day. A child is very small indeed when it is first taught that it must not do certain things relating to the sexual sphere and to what we call decency. And with these little beginnings, then and there begins the never-to-end conflict between what is natural and what is "correct."

Sixth. In the light of the little I know of psychoanalysis I think I see more and more patients, a gradually increasing number, in whom the ordinary present-day methods of exploration seem to be inadequate. I think my associate, Dr. Hamill, will agree with me when I say that scarcely a day passes without a case in which we think psychoanalysis would be a help. I feel that there are elements in the case of which I am not aware. There probably have been etiologic factors of which the patient is as ignorant.

How many, or what patients suffering from the various psychoneuroses should be submitted to the treatment called psychoanalysis I do not in the least know. A very good neurologist, who is using the method, a few days ago told me that he thought the percentage very low indeed. Some physicians who have become particularly expert find the proportion high. According to them, there are few cases of hysteria, etc., which should not be so treated. There is, however, some doubt. I have an idea that the proportion is considerably less than half, because in the majority of these cases we can do very well with the older methods.

If we would take all the time and bother with these patients in carrying out the older methods that we have to take with the psychoanalysis, we would not be so industriously looking for another method. I think there will be a more or less (according to the skill of the physician) restricted number of cases which are certain to be best treated by this method.

Just one final word about the men in this field. Some of them I know personally. I think it is due to these workers to say that their work does not show the ear-marks of the unbalanced, enthusiastic and erratic. They state their findings judicially and modestly. They make considerable claim, it is true, but when they can say (and I have not seen the statement refuted) that no man who has gone into the method thoroughly has not said that there is a great deal in it, I am sure it must have value; and I think it poor taste and unscientific for one not himself experienced to indulge in sweeping criticisms.

Dr. V. Podstata:—I have been a student of the Kraepelin School of Psychiatry, and while I still adhere to and practice its teachings, I am very much interested

in this subject, and not only willing, but anxious to learn all I can of it. I first had it brought to my attention by Dr. Adolph Meyer. I find that I can use it without any violation of principles previously held. This I am able to do particularly because of a certain thing which Dr. Jones has emphasized. Psychoanalysis largely means a method of education—that is what it really is. I do not know why the word education (or, as the French use it, re-education) would not be a better and more descriptive name than the word psychoanalysis, which only covers one point.

The method of teaching people how erroneous thinking about certain subjects results in serious disaster to themselves, is of exceeding importance. I believe the time is coming when we will take it up in our common schools; when the children will be taught not only how to memorize a lot of things, but they will be taught how to associate them and how to come to right conclusions which they can use in the future.

For that reason I believe what has been done is of tremendous service to us, and there is an opportunity for doing bigger work. I certainly intend to use psychoanalysis (with a great many modifications, of course, which everyone would have to make to fit the case in hand), and perhaps shall go farther than I originally intended by trying the method in dementia præcox. I must say, however, that I am not inclined to believe that dementia præcox is caused by purely mental influences. It appears to me, from pathologic findings in post mortems and in the clinical laboratory that there is something primarily wrong with the body of the sufferer. I can only point to the various findings in the blood, the chemical and organic changes found in the brain. I am inclined to believe that here we are dealing with a disease which has a toxic basis. I do not see, however, why this should in any way conflict with what we have been discussing. I do not see any objection to psychoanalysis, and the many good results reported should convince us that it is something we should become acquainted with.

Dr. H. N. Moyer:—When the Freudian method of analysis was first made known to me it appeared to me the most unmitigated rot that I had ever heard of, but it was brought again and again to my attention and I thought I would try it. I must say that I was simply astounded at the results. Now I know these gentlemen who have read the papers this evening would laugh if they could see the crudity of my procedure, in attempting to use it; but notwithstanding that. I have attained results which have astonished me and I have been treating psychoneurotics for twenty-five years!

If you say that this is suggestion, then I do not know what suggestion means in neurology. It is not suggestion. To say that it is re-education comes nearer to describing it, but it is not that exactly. But whatever it is, or however you describe it, it is an exceedingly valuable method of diagnosis and treatment. It gets at what is the matter with the patient. It does not necessarily cure him and you cannot use it in every case, and I suppose I have failed twice out of every three times, but that I am sure, and am free to admit, is largely due to my defective method of using the method, but all I can say is, try it. Then see what your results are. I am thoroughly convinced that it is one of the most efficient methods we have in many psychoneurotics. It reaches certain classes of patients who cannot be reached in any other way.

Dr. George F. Butler, Willmette:—I will refer simply to two points without attempting any argument. It seems to me that the preceding discussion has been on two distinct and separate points: the examination into the mental activity of the human mind is one thing. The other, the Freudian question, whether the result of a psychoanalysis points always to a sexual basis.

Psychosexuality as a matter referring to all the activities of life may be the opinion of some. It is very suggestive of the utilitarian theory of philosophy. In that, as you know, every act of life is done from a utilitarian principle, but many people do not accept that view. There are large numbers on the outside of the medical fraternity who do not believe that sexuality governs this world and

there are just about as many who do. I have heard people of the laity claim that were it not for the sexual impulse there would be nothing to work for, that it is the motive force in the world. I for one do not accept that, and if Freud finds that and concludes from his very broad generalization that the sexual impulse is behind all forms of activity, I think a large number of us will decline to accept that interpretation. I do not accept that and I think I see in the activities of the normal life as well as in the activities of the sub-normal life many sides which are not sexual. So much for that point.

Now for the question of psychoanalysis: As a modern analysis I think we are to be congratulated in having this subject brought up to us, for it is only physiology introduced into practical methods. It seems to me that the psychoanalysis is leading us into the wider conception of disease which we have reached in the study of pneumonia, typhoid fever and other diseases from an analytical standpoint, instead of putting them all down as practically the same thing simply because they have manifestations that are unlike those that we see in healthy, normal individuals about us.

Heretofore in psychiatry we have treated symptoms because they were not read and interpreted. With this method we will treat the individual, as such, and see where the symptoms lead and why, and get at the root of the trouble.

Dr. Julius Grinker:—Irrespective of the fact whether we are within or without the pale of the chosen few who had the privilege and opportunity to work with Freud, we must acknowledge that he has an analytic mind—a keen insight into human nature, which has opened new paths for others to follow. It must be admitted that it is not very easy to understand Freud's viewpoint, and for that reason we are under obligations to the essayist who has in numerous contributions and discussions endeavored to acquaint the American profession with Freud's work.

Whether Freud is correct in attributing all of the symptoms of the psychoneurotics to sexual trauma, repressed desire or sexual perversion becoming converted into a somatic disorder, I am not competent to state. Certain it is that Freud's work has stimulated greater activity on the part of physicians to analyze their patients' mode of thinking in reference to their past experiences. The physician who does not practice psychoanalysis in the broader sense is not competent to treat nervous cases. It will not do to tell a patient he has hysteria and that he is well, and then order him out of the office. That man will succeed who is not afraid to wade through mud up to the neck in order to reach a dry and healthy spot from which to begin a thorough cleaning.

Whether wrong or right that the sexual element is at the bottom of everything, Freud is not wrong in stating that either it or its equivalent is responsible for many things both good and bad.

The vehemence of an attack on a scientific problem is often in inverse proportion to the degree of ignorance of the attacking party. Freud's detractors are no exception to the rule, as was plainly demonstrated this evening. The man who either had no experience with the method or else is too indolent to learn it, is a very poor critic indeed, and had better learn something about it.

Dr. William G. Stearns:—Recognizing, as we all do, that there is no more potent influence in the making of man or woman than the sexual, I must heartily welcome any hypothesis or theory that will stimulate us to a greater effort to get at the bottom of the sexual element.

Years ago the founder of a school of medicine was said to have maintained that the sole cause of disease in the human body was the itch mite. Regardless of the truth or fallacy of his position, Hahnemann was a great stimulus to the medical profession. I do not mean to place the Freudian theory in the same class exactly, yet it is based on a similarly startling and unique proposition—that psychoneuroses start with some sexual trauma—and should be most stimulating to more effective study of these much-neglected and puzzling neuroses.

Dr. H. Douglas Singer (closing the discussion):—I do not think there is anything to which I wish to reply except to Dr. Kuh's remark that I stated that

the therapeutic outlook is hopeful. At the present I think it is decidedly premature for us to say what the outlook is. The point I wish to emphasize is that if we attain good results at all it must be in the very early stages.

In regard to dementia præcox: we cannot go into that very fully. One might suggest in answer that even if intoxication is present, the presence of emotional disturbances must necessarily give rise to disturbed metabolism, for, as we know, all of the organs of the body are involved in every expression of emotion, and it is possible that such metabolic disturbances may be capable of giving rise to an intoxication and in that way the results we find by examination of the blood and chemical analysis of the brain might be due to disturbed metabolism resulting from the emotional upset.

Dr. Ernest Jones (closing the discussion):—I thank you very heartily for the patience with which you have listened to my exposition of an unpopular subject.

Dr. Kuh opened his remarks by saying that I had not enumerated all the objections to the psychoanalytic method, a statement which, indeed, occurs in my own paper. I came prepared to meet these objections, but not to meet those that are brought against a hypothetical theory that is not Freud's. Most of Dr. Kuh's objections are to views that are not held by Freud, whose views he has seriously misunderstood and distorted.

According to Dr. Kuh, Freud extends the term sexuality until it includes practically all human activities. The truth is that Freud uses the term in a definite, logical sense, and holds that psychosexual activities are *connected with* many non-sexual ones, a very different matter. I might remark that if Dr. Kuh's conception of Freud's views were true, there is no reason why he should so vigorously disagree with Freud when he traces the psychoneuroses to sexual factors (i. e., to human activities).

Then comes the old argument that Freud has changed his views about the significance of infantile sexual traumata. Freud has merely shifted his point of view in deference to more extensive experience. He still holds that such traumata are essential factors in the development of the psychoneuroses, but he now lays more stress than before on the mode of reaction toward them than on the mere occurrence of them.

Dr. Kuh says that he cannot agree with the logic of Freud's arguments that because the word Frauenzimmer in German means woman, therefore to dream of a room indicates a sexual thought, and that because Freud sees a resemblance between a raised umbrella and an erect penis, therefore to dream of an umbrella also indicates something sexual. I surely need hardly say that Freud has never said anything resembling this. I doubt if any sane being has ever used such absurd arguments as these incorrectly ascribed to Freud by Dr. Kuh, but in any case I can hardly be expected to defend them.

Dr. Kuh says he has read in Hitschmann's book that thumb-sucking represents a subconscious sexual act. This must certainly be an error, for not only does Hitschmann never use the word subconscious, always using the word unconscious, which denotes something quite different, but also he does not represent thumb-sucking as an unconscious act of any kind. Anyone who had read Freud would know that thumb-sucking is mostly performed at a time of life when there is no unconscious mentality at all.

It is quite unfair to say that Freud has reverted to the old view as to the importance of masturbation in regard to the psychoneuroses. All he says is that in certain cases the mental conflict (remorse, etc.) engendered by the act operates by awakening still older conflicts of infantile life, and so may become pathogenic. This is a very different matter.

Dr. Kuh cannot agree with me that the objections to the Freudian theory are due merely to prudery. I never said that they were, but only pointed out the easily demonstrable fact that there exists a great deal of prudery in regard to these matters, which renders it difficult to obtain an unbiased consideration of them.

I cannot here go into the whole question of suggestion, especially as I have recently published a paper (in the *Journal of Abnormal Psychology*) fully dealing with it. Dr. Kuh considers that the effect of psychoanalysis is due to the giving of suggestions, quoting as proof of it Freud's remark that patients must relate all their thoughts, even disagreeable ones. It is true that when a patient halts and shows signs of shame he has to be told to speak out even if it is painful, but if anyone thinks that the brilliant results of psychoanalysis can be obtained by the "suggestion" of asking a patient to talk about disagreeable matters, my only answer is: Let him try.

In conclusion, when Dr. Kuh tells us that he has had bad results by using what he calls psychoanalysis, all I can say is that I am not very surprised.

Dr. Julius Grinker:—I think it is the sense of the two societies to adopt a resolution thanking Drs. Jones and Singer for their valuable papers. I therefore move that a rising vote of thanks be tendered them. Seconded and carried.

LAKE COUNTY

Meeting of the Lake County Medical Society in joint session with the Lake County Teachers' Association and the Lake County Tuberculosis Institute. Program under the auspices of the Educational Committee of the Lake County Tuberculosis Institute held at Deerfield Township High School auditorium, Highland Park, Illinois, Jan. 21, 1911.

An audience made up of teachers, physicians, members of Women's Clubs and charity workers to the number of 200 attended this meeting. The following program was rendered: Dr. L. M. Bergen, Highland Park, "School Hygiene." Pres. J. S. Nollen, Lake Forest College, "What the Laymen Expect of the Physician in the Prevention of Disease." Dr. H. E. Dearholt, Milwaukee, "What the Physician Expects of the Laymen in Assisting in the Prevention of Disease."

Dr. Bergen's paper was a most valuable one and gives the most modern ideas in assisting the teacher in her new line of work, that of teaching hygiene in the schools.

President Nollen said that we had a right to expect of the medical profession an example of right living as much as we had to expect a good example to be set in the moral code by the clergy. We have a right to expect of the medical profession that they be leaders in the agitation for better water supplies, better disposal of sewage and more attention to personal and public hygiene.

Dr. Dearholt of Milwaukee argued that the public is getting about all it pays for from the medical profession. He said that in Wisconsin they were paying several times as much for the protection of wild animals as was being paid all the health boards of the state. Doctors have a living to make the same as other people. The public has no more right to ask them to give their time and experience to the agitation of public matters than they have the lawyer or other professional men. He wants to see the state take charge of many of the institutions that are now supported by charity and administer them as schools and give them proper support, the same as other state institutions.

The next meeting of the Lake County Medical Society will be addressed by Dr. Sidney D. Wilgus, superintendent of the Illinois State Hospital, on the subject, "The Management of Hospitals for the Insane," and will be held some time in March at Waukegan, Ill.

W. H. WATTERSON, Sec.

MADISON COUNTY

The Madison County Medical Society met at the rooms of the Commercial Club in Edwardsville on February 3, with President W. H. C. Smith in the chair. Members present: Drs. Tulley, Yerkes, Hastings, Wahl, J. H. Fiegenbaum, Luster, Zoller, Kerchner, Wedig, Riley, Smith, Harrison, Barnsback, Sims, Pfeiffenberger, Oliver, Kiser, King, R. B. Scott, Ferguson, Robinson and the secretary. Visitors: Drs. Lucinda Corr, Carlinville; Wiggins and Lillie of East St. Louis; Wiedman

and Spitze of Edwardsville, and the honored speaker of the day, Dr. A. C. Cotton, of Chicago, President of the Illinois State Medical Society. The matter of the transfer card of Dr. F. C. Vogt of Livingston was taken up by unanimous vote, and on motion said card was accepted and Dr. Vogt declared a member of this society by transfer from the Sangamon County Medical Society. The committee on resolutions on the death of Mrs. Susetta B. Yerkes, wife of Dr. T. P. Yerkes, and mother of Dr. L. L. Yerkes, both of Upper Alton, made a report which was adopted by rising vote.

A communication from Senator Beall, asking for three or four members to appear before the senate judiciary committee February 16, in support of his bill, amending the marriage laws, was read. Dr. Tulley moved the same be accepted and a committee of three appointed. The Chair appointed Drs. Tulley, Pfeiffenberger and E. W. Fiegenbaum. On motion made by the secretary the name of our president, Dr. W. H. C. Smith, was added to the committee. The courtesy of the society was then extended to all visiting physicians. Our State President, Dr. A. C. Cotton of Chicago, then read a paper on "Acute Anterior Poliomyelitis." It was a very exhaustive treatise taking in the whole subject from pathology and etiology through symptomatology and treatment. It was highly instructive and was greatly appreciated by all who were present. The discussion became general and was participated in by Drs. Pfeiffenberger, Smith, Ferguson, Wiggins, Lillie and others. A rising vote of thanks was tendered to Dr. Cotton for his very able address and to show our appreciation of his visit to us. The board of censors made a favorable report on the applications of Drs. E. C. Spitze of Edwardsville, Malfred Hamm of Madison, Geo. R. Cowan of Granite City and Geo. K. Worden, Alton, and they were unanimously elected. It was ordered that we hold our next meeting in Granite City, on March 3, and the secretary was instructed to invite the members of the East St. Louis and St. Clair County Medical Societies, through their respective secretaries. On motion adjourned.

E. W. FIEGENBAUM, Secretary.

M'LEAN COUNTY

The McLean County Medical Society met Jan. 5, 1911, with Dr. J. H. Fenelon in the chair; Dr. F. C. Vandervoort, secretary pro tempore. Dr. G. D. Zeller discussed "Pellagra." In view of the fact that this puzzling disease is rapidly assuming alarming proportions in the United States, the topic was a particularly timely one and Dr. Zeller was given the closest attention by everyone present.

PELLAGRA, THE CLOUD ON THE MEDICAL HORIZON OF ILLINOIS

G. D. ZELLER, M.D., SUPERINTENDENT BARTONVILLE ASYLUM

(ABSTRACT)

In the beginning the speaker announced that the title "The Cloud on the Medical Horizon of Illinois," was a formidable one for a disease, the very existence of which is in dispute. Pellagra is so puzzling that some medical authorities deny its existence, while there is nothing of a satisfactory nature to be found in text books.

Pellagra has been known since 1735, the name being of Italian origin meaning "rough skin." The Italians have been investigating pellagra for the past century and a half and have not yet advanced beyond the corn field. What was known as the anti-corn crusade in that country and a subsequent reduction of the number of cases led the medical authorities of that country to make the generalization that its origin was in the use of Indian corn or maize and yet today Italy is divided into two camps on the corn theory.

While it is true that the anti-corn crusade in Italy had the effect of reducing the actual number of cases in that country, the fact is generally overlooked that this crusade was of a highly hygienic nature, which fact in itself, would account for the reduction in the number of cases. The corn theory, however, is practically

universal. Even the English clung to it until the appearance of the disease in the United States.

The disease was first noticed in the United States in 1906 and since that time it has been recognized in twenty-six states. There are at the present time 300 known cases of the disease in Illinois. There is a conceded mortality of 50 per cent. and this being the case, the day is not far distant when the disease must be brought strikingly to the attention of Illinois citizens and particularly Illinois physicians. As workers in the greatest corn producing county of the greatest corn producing state, the physicians of McLean county should investigate the matter thoroughly.

Dr. Zeller stated the opinion emphatically that pellagra is a disease entity. He said it was a disease of striking anomalies, that it affected people in every walk of life and although most prevalent among the middle aged, children are by no means immune from it. Insane people have it, but it is not known whether insanity is caused by pellagra or pellagra follows insanity. It is an entirely painless disease, is greatly affected by solar influences, yet, in spite of this fact, the negro is peculiarly susceptible. It is spreading progressively, yet is nowhere considered contagious. Dr. Zeller himself has seen 200 cases and in not a single instance was he himself nor any of the attending nurses affected. Persons suffering with pellagra have been known to live from fifteen to fifty years, while others have been attacked by the malignant form and died in a week.

The disease first evidences itself by a red spot over the knuckles of the hand and rapidly extends above the wrist. It may go above the elbow and also attack the neck and lower extremities. The effect of the disease leaves the parts attacked in a condition similar to the effects of scalding. Two patients died at the Bartonville asylum several years ago and the coroner held inquests in both instances. The verdicts were that the patients had been scalded to death and an investigation was narrowly averted. That was before pellagra became known in this country. To-day the officials of the institution know that the patients died of pellagra.

The disease in its severe form has all the worst features of every known skin disease, while in its lighter form the temperature of the patient is normal or even subnormal, but may rise to 108 without an instant's warning. In temperate climates the patients show no signs of the disease during the winter months, but it immediately reappears with the approach of summer. A patient never knows when he is cured and at the present time there is no way of knowing. There is no effective treatment known, although arsenic administered both internally and externally has in some instances proved efficacious.

Following the reading of Dr. Zeller's paper, an open discussion prevailed, in which a number of Bloomington physicians questioned Dr. Zeller on the different phases of the disease.

MORGAN COUNTY

The Morgan County Medical Society held its regular monthly meeting Thursday evening, Feb. 9, 1911, at the Public Library, Jacksonville, Illinois, with the following members present: Drs. Milligan, Reid, Pitner, Baker, J. U. Day, Gailey, Perkins and Metcalf of Franklin, Hairgrove, Cole, Crouch, Bowe, Woltman, Baxter, Norris, Duncan, Stacy, Black, Campbell, Hardesty and Gregory. Dr. L. J. Harvey of Griggsville was a visitor. By special invitation, all the druggists, dentists, nurses and physicians not members of the society were asked to attend. Also a representative of each local newspaper.

The subject presented was "The Relation of the Treatment of the Sick to the Public Press," by Dr. Carl E. Black. In part, Dr. Black's paper was as follows:

A number of times discussions have arisen in the County Society regarding the appearance of names of physicians in the public press, especially in connection with accident cases and occasionally in connection with cases of illness. Also there has been much criticism of the press on account of its advertisements

of nostrums and quack physicians. These discussions have always been unproductive and unsatisfactory for lack of accurate data. During the year 1910, the author had clippings made from each of the two daily papers of Jacksonville. These embraced all that was said in the papers regarding any physician, either in form of an advertisement or card or as reading matter. They also embraced all advertisements of nostrums, quack doctors, irregular physicians, veterinary surgeons, druggists, dentists and in fact everything which in any way pertained to the practice of medicine or the treatment or care of the sick or the prevention of disease. These clippings were classified and pasted in folders so as to form an exhibit. This exhibit was the most interesting and profitable feature of the occasion. Each physician could see just what has been said about himself or his neighbors in the local press during the twelve months past, as he could also see the quantity and character of nostrum advertisements, the advertisements of quack doctors, etc. Altogether it was a unique and profitable exhibit and was full of suggestions for future work. Several charts were presented which summarized the information gained from the clippings.

CHART NO. 1.—PHYSICIANS

Number.	Standing Cards † Times in		Mentioned in Reading Matter.		Totals.		
	Courier.	Journal.	Inches.	Times.	Inches.	Times.	Total.
I	310	310	20	14	640	634	30.
II	....	....	86½	11	86½	11	....
III	....	....	13½	4	13½	4	....
IV	310	310	163	43	783	663	30.
V	....	....	44	8	44	8	....
VI	310	310	28	9	648	629	30.
VII	310	310	14	4	634	624	30.
VIII	....	....	2	2	2	2	....
IX	....	....	20	6	20	6	....
X	....	....	5	7	5	7	....
XI	....	....	70	21	70	21	....
*XII	....	....	16	6	16	6	....
XIII	310	310	1	3	621	623	30.
*XIV	....	310	46	19	356	329	15.
XV	310	310	20	12	640	632	30.
XVI	310	310	82	23	702	643	30.
XVII	....	235	13	5	248	245	12.
XVIII	310	....	7	3	317	313	15.
XIX	310	....	....	....	310	310	15.
XX	....	310	1	1	311	311	15.
XXI	310	310	13	4	633	624	30.
XXII	310	310	36	16	656	636	30.
XXIII	....	205	23	11	228	216	10.
XXIV	310	310	34	25	654	645	30.
XXV	310	....	74	24	694	644	15.
*XXVI	310	310	53	30	673	640	30.
XXVII	75	75	36	11	186	161	7.50
*XXVIII	310	310	20	9	640	629	30.
XXIX	....	310	180	44	490	354	15.
XXX	....	....	11	8	11	8	....
XXXI	310	310	1	1	641	620	30.
XXXII	....	....	12	10	12	10	....
XXXIII	310	310	40	17	680	637	30.
XXXIV	....	....	15	3	15	3	....
XXXV	....	....	14	22	22	14	....
XXXVI	....	....	42	12	42	12	....
*XXXVII	....	....	5	5	5	5	....
XXXVIII	310	310	70	16	690	636	30.
XXXIX	....	....	5	4	5	4	....
XL	....	....	12	5	12	5	....
XLI	....	....	1	2	2	2	....
XLII	310	310	5	5	625	625	30.
XLIII	....	150	4	4	154	154	7.50
XLIV	150	....	19	5	169	155	7.50
XLV	310	....	12	8	322	318	15.
	6,425	6,555	1,389	502	14,628	13,678	629.50

* Not members of Morgan County Medical Society.
† Each card is estimated to occupy an inch of space.

CHART NO. 2.—MEDICINE AND THE PRESS

GENERAL SUMMARY

Class.	Times.	Total.	Inches.	Total.	Est. Cost.	Total.
Physicians, local, paid	13,290		13,290		$644	
Physicians, local reading	502		1,389		....	
Physicians from county	206		444		....	
Physicians from neighboring counties	140		168		....	
Physicians from a distance	84		193		....	
Total		14,222		15,484		$644
Dentists, paid	4,444		4,590		$165	
Dentists, reading, dental society	20		104		....	
Total		4,464		4,694		$165
Veterinary physician, paid	620		520		$ 30	
Veterinary physician, reading	32		32		....	
Total		682		552		$ 30
Druggists, A	672		3,431		$172	
Druggists, B	954		4,485		224	
Druggists, C	....		....		....	
Druggists, D	510		3,263		163	
Druggists, E	4		2		0	
Druggists, F	31		110		5	
Druggists, G	....		....		....	
Druggists, H	....		....		....	
Druggists, I	164		575		29	
Retail Druggists' Association	7		14		....	
Total		2,342		11,880		$594
Newspapers, A	926		5,664		$253	
Newspapers, B	411		1,395		318	
Total		1,337		6,659		$333
Quacks and charlatans, A	285		5,158		$258	
Quacks and charlatans, B	258		2,635		131	
Others	63		565		28	
Total		506		8,358		$428
Osteopaths, paid	215		320		$ 16	
Osteopaths, reading	8		10		....	
Total		223		330		$ 10

EDUCATIONAL MATTERS

Newspaper therapeutics	5		22			
Public health problems	21		286			
Tuberculosis	40		353			
Historical medicine	2		141			
State Board of Health	14		106			
State Board of Control	11		71			
State Institutions	73		245			
Associated Charities	19		58			
Medical Society Reports	41		183			
Med. Inspection of Schools	15		252			
Hospitals, A	89		138			
Hospitals, B	207		555			
Miscellaneous	40		322			
Total		577		2,732		
Coroner	38		382			
Births	158		168			
County commissioners	88		7,000		$280	
Personal injuries, no doctor mentioned	135		394		....	
Personal injuries, doctor mentioned	104		....		....	
Total		523		7,944		$280
Undertakers, paid	1,240		1,860		$ 90	
Undertakers, reading	1		2		....	
Total		1,241		1,862		$ 90
Grand total		26,117		60,495		$2,580

The first chart shows the physicians as they appeared in the papers. The physicians and others are indicated by number or letter and not by name. The second chart is a summary of everything of all classes which appeared in the papers during the twelve months and forms an exceedingly interesting and important exhibit. Probably every physician and every one else who has looked at these tables has been surprised at the small amount which the newspapers receive from the advertisements of nostrums and charlatans. Two newspaper men representing each of the daily papers, were present throughout the meeting and stated that they believed this table was substantially correct excepting that possibly the estimate of moneys received for the advertising of nostrums and charlatans was about 20 per cent too low. Even adding this 20 per cent. the amount is comparatively small and there should be no great difficulty in inducing the press to abandon this kind of advertising for, thereby, they would secure at once the more hearty cooperation of all truth loving people, which would certainly be well worth the money. The fact that two popular daily papers receive less than $3,000 per year from all advertisements of druggists, nostrums and charlatans, was a surprise to everyone and was the most important fact brought out by the investigation. The amount is certainly much smaller than even the newspapers themselves had supposed.

Dr. Black concluded his paper with the two following paragraphs:

"There is no way that we can devise which will so effectually drive the manufacturers of nostrums, the quack doctors and the irregular practitioners out of business as for each member of this society to so conduct his practice as to not be guilty of any just criticism. To do this is simple. First, he must carefully and thoroughly examine every patient until he has exhausted all of his own resources in an effort to arrive at a correct diagnosis. In addition to this, he must be willing to accept the assistance of any other physician or any other method of diagnosis which will supplement his own efforts to the end desired. We all know that after a correct diagnosis has been made the application of appropriate treatment is not difficult or if it is difficult, we are in a position to explain carefully to our patient the difficulties of treatment, the uncertainty of results. In other words, to give them a correct diagnosis. If we do this, we will greatly increase the respect and esteem in which we are held by the public.

"The press follows the public opinion closely. Whenever public opinion determines that nostrums, quacks and irregular practitioners are not necessary and are harmful, their advertisements will disappear from the public press and not until then. From my point of view, the remedy for what we consider as a great evil and a great harm is entirely within our own control and I appeal to you to set about the task of so thoroughly elucidating every diseased condition brought to your care that the patient will feel that he has received all that he was entitled to at the hands of a great and honorable profession."

An interesting discussion followed the paper and was participated in by the two newspaper representatives, Dr. Kopperl, president of the local Dental Society, who spoke in behalf of the dentists, and several members of the society presented their views on the subject. The newspaper men had come to the meeting with the expectation of catching "thunder," but had only words of praise for the broad minded way in which Dr. Black presented his paper. One of them stated that the real effect of the paper was that the advertising of the nostrum was not only objectionable to the medical profession, but also a detriment to the welfare of the public. Dr. Kopperl thought that there were times when one was justified in having a card put in the paper, and Dr. Harvey could not see any more harm in a doctor's name being mentioned with a case than a lawyer. On the other hand, Dr. Pitner said: "What interest has the public in who the attending physician is? The frequent mention of a physician only in connection with a case savors of undue prominence and pushing of the individual for public recognition. You cannot fool a doctor on this subject, they know the quackery and will spot those fellows every time. A man should make his claim and ask recognition by the work he does and the man he is, not what he claims or pretends or solicits. Of all classes, the most easily imposed upon are the sick people. They are ignorant of disease in general and no honorable man will deceive

them. But here is where the quack flourishes by making false pretenses of cure when he knows he is not able to fulfil his promises. The A. M. A. has been doing good work in the way of exposing fraud and fraudulent nostrums."

Dr. Bowe thinks the spirit of commercialism has largely entered into the medical profession, and that specialization without preparation is too prevalent.

Dr. Reid hit the nail on the head when he said: "It may be of interest that some prominent citizen is sick or had an accident, but of what earthly interest is it to know that the patient was operated on by A by the assistance of B, or that he got there in his automobile in so many minutes? We know why those things are put in the paper and what is meant by them."

Dr. Milligan says the doctors should strive to educate the public through the papers on public health subjects and soon the patent medicine ads, etc., will be crowded out.

The matter of carrying cards in the paper is done because it is the style. Nobody is going to look at the cards in the paper to see what doctors they want, is the opinion of Dr. Crouch. This is an educational question. The newspapers of this country, this community, lead the public opinion to a certain extent, that is their purpose. Now if a newspaper advertises Lydia Pinkham's remedies, the poor ignorant woman who answers that advertisement will say that the *Journal* and the *Courier* stand for it, they are back of it. The newspaper in an educational way is back of whatever they put in the paper.

Now, would it not be much better if the space occupied by these various advertisements be occupied by matters regarding the prevention of tuberculosis, medical inspection of schools, and educated the public in questions that they are vitally interested in? That is something the public ought to know. Tubercular people are walking the streets every day menacing the public health. Are the papers calling attention to it? I don't mean this as a special criticism of the papers, but would not the medical profession be willing to lend a hand to furnish the material to educate the public? I think it is perfectly legitimate that their names should be added in questions of public health, not as an advertisement of the physician, but as a purely educational motive."

A. R. GREGORY, M.D., Secretary.

PEORIA COUNTY

THE PEORIA CITY MEDICAL SOCIETY

At the regular meeting of The Peoria City Medical Society on Jan. 17, 1911, Dr. T. W. Gillespie read a paper on "The Anesthetist as a Member of the Surgical Team." The doctor urged the necessity of trained anesthetists who have a general working knowledge of the technic of the surgeon with whom they work, in order that the least possible amount of anesthetic may be given, getting profound sleep only when sensitive structures are being handled. The fact that without anesthetics little surgery would be done, and that danger attends all anesthesias, places the anesthetist as an important member of the surgical team. He should watch the operation, keep track of the different stages, be just a little ahead of the surgeon, and have the patient relaxed for the handling of sensitive structures, such as the peritoneum. He should conserve the anesthetic in intestinal anastomosis, etc. The greater the amount of anesthetic used, the greater the danger to the patient; therefore, short operations and trained anesthetists.

The doctor gave statistics from the clinic of Dr. Clifford U. Collins extending over a period of years, in the use chiefly of ether by the open method; compared the value and dangers of the various anesthetics, favoring the use of nitrous oxid gas, with ether when needed to relax the patient at times in the major operations. It seems to be attended with the least danger, both immediate and remote, and is by far the most satisfactory to the patient. He described the Teter apparatus and the gas manufacturing plant as used by himself and as studied by him under Teter in Cleveland recently. The discussion was opened by Dr. R. A. Hanna, and was participated in by a large representation of the membership present.

Dr. Collins reported the conclusions in court, wherein the suit for malpractice against Dr. J. W. Daugherty, of Chillicothe, member of this society, was dismissed on account of no cause for action, the plaintiff failing to prove any negligence on the part of the doctor.

At the semi-monthly meeting of February 8, the essayist was Dr. F. K. Sidley, subject "Deaf-mutism, Partial Deaf-mutism, with Education of Deaf-mutes." The doctor laid particular stress upon the elucidation of the "tone-islands," wherein so many so-called deaf-mutes are found to hear certain tones of the tuning fork, and recognize some of the vowels. This forms a foundation for education. The lip method has supplanted the old sign or finger method of teaching. A mirror is used to study the motion of the lips, and the four-meter speaking tube is used in teaching. Instruction should begin at 7 years of age. The doctor has recently found tone-islands in a large number of cases which were thought to be completely deaf.

Dr. C. B. Welton read a five minute paper on "Defective Eyesight in School Children," in which he mentioned the work of Dr. Neff, of Philadelphia. Examination of the eyesight of the Philadelphia school children showed 60 per cent. defective. The munificent sum of $300 was appropriated to correct the vision of 354 children whose sight was so poor that they could neither see to read on their desks nor on the blackboard. This correction of defective vision brought about most excellent results, and undoubtedly saved many of these backward children from becoming incorrigibles and delinquents and subjects for the state institutions.

Dr. J. H. Bacon read a five minute paper on "The Medical Inspection of Schools," grouping the findings as follows: Infectious diseases, tuberculosis, physical defectives, poor and insufficient food, the mental weakling and school hygiene and exercise. Dr. Bacon suggested that there would be no difficulty in getting a sufficient number of the society members to volunteer their services for a time to demonstrate the value of school inspection. He called special attention to the economic gain to the community by largely increasing the health and efficiency of the school children.

Dr. S. M. Miller read a five minute paper on "Tubercular School Children," recommending persistent medical inspection to ascertain the tubercular, who are to be placed under surveillance. Those having the "closed" or non-contagious form should be watched carefully, guarded against mental and physical overstrain, etc. Those having the "open" form, who are expectorating, should be *excluded* from the school precisely as other contagious diseases are excluded, both for the patient's own good, that he may recover under proper conditions, and to protect the healthy children. This class should be placed in open-air schools. Dr. Lowman of Cleveland examined 500 school children and found 100 of them tubercular. Improvement in physical condition and mental ability has been demonstrated thoroughly at the Graham school in Chicago, where they now have 20 open-air rooms, the children wearing coats and hats; the thermometer standing at 40 to 50.

Dr. W. C. Williams opened the discussion. Superintendent Gerard T. Smith of the city schools, and Judge Maple, president of the school board, were present and took part in the discussion. They gave specific reasons for medical inspection and expressed appreciation of the offer of members of the society to help inaugurate the system in the Peoria public schools, without recompense.

E. W. OLIVER, Secretary.

SANGAMON COUNTY

The Sangamon County Medical Society held its regular monthly meeting at the Y. M. C. A. building, Feb. 13, 1911, the Lincoln Library Building being closed on this date in honor of Lincoln's birthday. Dr. G. F. Stericker, president, presiding at the meeting. The minutes of previous meeting read and approved. Mrs. Prince's card of thanks to the president for sympathy extended to her by the

society at the death of her husband, Dr. J. A. Prince, was read. Dr. G. N. Kreider moved that Dr. E. E. Hagler, chairman of committee to draft appropriate resolutions relative to the death of Dr. J. A. Prince, be informed by the secretary to report action of same to this society at our next monthly meeting. Carried. Dr. O. L. Zelle's application for membership was read. Dr. S. Castel moved Dr. Zelle's application be referred to the board of censors. Carried.

The president asked the disposition of the society relative to Dr. S. E. Munson's report as chairman of committee of December 10 meeting, recommending an increase of annual dues from $4 to $5; action on above having been deferred till this meeting. Dr. T. H. D. Griffits moved the question of revision of by-laws as follows be acted on at this meeting as our dues are due: Annual chapter v, section 2, second line, by striking out the figure 4, and substituting the figure 5. Also annual chapter 5, section 2, first line, by striking out figure 4, and substituting figure 5. Dr. C. L. Patton moved adoption of revision. Carried. The letter from Dr. E. W. Fiegenbaum of Edwardsville, Ill., to Dr. G. N. Kreider, asking the society to support Senator Bell's bill relative to marriages in Illinois, requiring physicians' certificates of health, and read at previous meeting, came up for discussion. The matter was referred to the legislative committee for action. Dr. S. E. Munson moved that president appoint legislative committee. Carried.

Dr. H. T. Morrison presented a most thorough and instructive paper on "The Present Epidemic of Scarlet Fever in Springfield." There was shown a plat of Springfield and each case of scarlet fever was represented by a tack, different periods, etc., of epidemic being represented by different colored tacks. It was unique, showing the district origin of epidemic, districts showing greatest infection and its spread through the city. Discussion was opened by Dr. C. M. Bowcock. The general discussion which followed was participated in by most of those present, and proved the appreciation and importance of Dr. Morrison's paper. The absence of Dr. O. B. Babcock, who was on the program to present "Quarantine in Scarlet Fever Epidemic," and of Dr. G. T. Palmer, who was to present "Closing of Public Schools During Scarlet Fever Epidemic," was regretted. Members present: Helen Babb, C. M. Bowcock, A. L. Brittin, Stanley Castle, O. H. Deichman, T. H. D. Griffitts, E. B. Godfrey, G. N. Kreider, C. A. Lloyd, C. H. McElfresh, H. T. Morrison, S. E. Munson, C. S. Nelson, C. L. Patton, G. F. Stericker, I. H. Taylor, L. C. Taylor, A. E. Walters, W. A. Young. Drs. Munson, Griffitts and Bowcock were elected to the legislative committee. Adjourned.

WHITESIDE COUNTY

The annual meeting of the Whiteside County Medical Society was held in Sterling, Feb. 8, 1911, President Broderick in the chair, and Dr. Perry appointed Secretary pro tem in absence of Dr. Sullivan. The annual election of officers resulted as follows: President, Charles E. Parker, Sterling; vice-president, Frank Fitzgerald, Morrison; secretary and treasurer, Wm. H. Perry, Sterling; delegate, Frank Anthony, Sterling; alternate, J. A. Nowlen, Morrison.

The afternoon session was devoted to reports of clinical cases. Dr. Charles G. Beard presented two cases of endocarditis with emboli. Both cases exhibited symptoms of cerebral embolism with paralysis, as well as numerous instances of embolism in mesenteric and peripheral arteries. Dr. Charles E. Parker of Sterling presented a case of measles complicated by pneumonia. The course of the latter was very atypical and was accompanied by purpurin manifestations.

A symposium on "Drug Poisoning" followed. Cases of acetanilid poisoning were cited by practically all present. Those present were: Drs. Nowlen, Fitzgerald, J. R. and J. F. Keefer, Anthony, Broderick, Beard, Parker and Perry.

Next meeting to be held at Morrison, April 12th.

WINNEBAGO COUNTY

The Winnebago County Medical Society met in annual session Tuesday, Jan. 10, 1911, at 8 p. m., at the Nelson House, Rockford, with President W. Grant Hatch in the chair.

On calling the roll, the following members were present: Drs. Allaben, Andrus, Atchison, Barth, Broughton, Crawford, Culhane, Cunningham, Dunn, Eakin, Farrell, Fitch, Gill, Goembel, Hanford, Hatch, Howard, Howell, Kimball, Kinley, Lofgren, Markley, Park Paul, Rogers, Scott, Starkey, Tuite, Vanderhoof, Winn, Wright.

The minutes of the last meeting were read and approved. The censors reported favorably on the applications for membership in this society, and the following were elected to membership: Dr. Ethan P. Allen, Rockford, graduate of Rush, 1866; licensed in Illinois, 1893. Dr. Robert W. Markley, Rockford, graduate Northwestern Medical School, 1898; licensed in Illinois, 1898. Dr. Guy Hall, Durand, Ill., graduate P. and S., St. Louis, Mo., 1908; licensed in Illinois, 1910.

The applications for membership in this society of the following men were referred to the censors: Dr. H. W. Ackemann, Rockford, graduate Northwestern Medical School, 1909; licensed in Illinois, 1910. Dr. O. M. Good, Rockford, graduate Chicago College Medicine and Surgery, 1908. Dr. E. E. Ochsner, Rockford, graduate Rush, 1896; licensed in Illinois, 1898. Dr. O. A. Olsen, Rockford, graduate Herring Medical College, Chicago, 1908; licensed in Illinois, 1908. Dr. C. M. Ranseen, Rockford, graduate Northwestern University Medical School, 1874; licensed in Illinois, 1877. Dr. C. V. Urbom, Rockford, graduate Hering Medical School, Chicago, 1903; licensed in Illinois, 1903.

Dr. P. L. Markley read a paper on "Practical Points in Surgical Diagnosis." Discussion by Drs. Wright, Howard, Gill, Fitch and Kimball.

Report of committees. The Committee on Bacteriological Laboratory was granted further time for report. The secretary and treasurer's report was accepted. Secretary's report, Winnebago County Medical Society, for the year ending Dec. 31, 1910: Organized at Rockford Oct. 18, 1881; chartered Jan. 26, 1893. Number of meetings held annually, nine. Place held, Rockford. Dates held, January 11, February 8, March 8, April 12, May 10, September 13, October 11, November 15, December 13, 1910. Average attendance, thirty-six. Date of annual election of officers, Jan. 11, 1910: President, Drs. W. Grant Hatch, Rockford; vice-president, George M. Haines, Durand; secretary and treasurer, Frank W. Hanford, Rockford; delegate, John E. Allaben, Rockford; alternate, P. L. Markley, Rockford; censors, W. B. Helm, W. S. Howell, D. B. Penniman. Members gained, three. Drs. W. H. Cunningham and C. H. Latham, by application; Dr. H. A. Pattison by transfer from Macoupin County Medical Society. Loss of members, seven: Dr. George M. Haines, moved from Durand to Grand Junction, Colo.; Dr. A. Hostetter, moved from Rockford to Los Angeles, Cal.; Dr. E. S. Hunt, moved from Rockford to Moab, Wash.; Dr. W. A. McDowell, moved from Rockford to Moab, Wash.; Dr. Sidney C. Miles, moved from Rockford to Indianapolis, Ind.; Dr. Penn W. Ransom, died April 2, 1910, Rockford; Dr. George W. Rohr, died May 5, 1910, Rockford. Total membership of society, seventy-two. Total members in good standing to include Dec. 31, 1910, seventy-one. Treasurer's report:

Cash on hand, Dec. 31, 1909	$193.16
Receipts for 1910	275.50
Disbursements	407.13
Balance and cash on hand, Dec. 31, 1910	$ 61.53

The next in order was the election of officers, as follows: President, Dr. W. H. Fitch; vice-president, Dr. A. C. Eakin; secretary and treasurer, Dr. Frank W. Hanford; censor, Dr. W. E. Park; delegate, Dr. Charles E. Crawford; alternate, Dr. W. S. Howell.

Dr. F. H. Kimball made a motion that owing to the growth of the society and the increasing duties of the secretary, that the secretary be paid $50 from the funds of the society for his efficient services the past year. Motion carried.

A unanimous vote of thanks was extended to the officers of the society for their efficient services.

The retiring president expressed his appreciation to those who were active in promoting the best interest of the society. Adjourned.

Book Notices.

Collected Papers. By the Staff of St. Mary's Hospital, Mayo Clinic, Rochester, Minnesota, 1905-1909, Octavo of 668 pages, illustrated. Philadelphia and London; W. B. Saunders Company, 1911. Cloth, $5.50 net.

The gentlemen connected with the Mayo clinic, including the Mayo Brothers themselves, have appeared many times before different medical societies in the past few years with papers giving the results of studies made in that remarkable hive of medical and surgical industry. The publication of these papers has been scattered over the various medical journals in all parts of the country, and up to this time it has been practically impossible for any one to secure the results of the work in the Mayo clinics without a great deal of trouble. The publication of these papers in one volume is therefore a great service to the whole profession outside of the intrinsic value of the papers themselves. The subjects under consideration cover all parts of the body, and give the reader a good idea of the character of work being done from day to day at Rochester. No one having to do with a surgical problem can afford to be without this valuable volume.

Differential Diagnosis. Presented through an Analysis of 303 cases. By Richard C. Cabot, M.D., Assistant Professor of Clinical Medicine, Harvard Medical School. Octavo of 753 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1911. Cloth, $5.50 net.

Dr. Cabot has written a work which should be studied by every practitioner in America. With the modesty of a great man he lays before the profession a profound study of presenting symptoms. He says the *"presenting symptom"* is comparable to a soldier who presents arms or to the presenting part in an examination in obstetrics. The complaints of patients—fragmentary expressions of the underlying disease—should be used as *leads*, and these leads can usually be followed to the actual seat of the disease. The method of case teaching has been used by Dr. Cabot for eight years at the Harvard Medical School, applying there a method long employed by the Harvard Law School.

It is distinctly refreshing to have such a book introduced into the library of the practitioner. It reads like a novel, and any one taking it up will be loath to lay it down. Dr. Cabot possesses a genius as a teacher, and any one who has not followed his teachings and writings is missing a wonderful opportunity for deep study.

NEWS OF THE STATE

PERSONAL

Dr. Walter F. Wessels, Mendón, sailed for Germany, February 1.

Dr. Joseph M. Wallace, Aledo, is reported to be seriously ill with pneumonia.

Dr. Strother J. Beeson, Chicago, has left for a trip to the West Indies and South America.

Dr. Lemuel L. Silverthorn, Charleston, who has been seriously ill, is reported to be improving.

Dr. Christian J. Hartung, Chicago, was struck by a street car February 2 and seriously injured.

Dr. Christian H. Zollar, Granite City, has been appointed superintendent of the Granite City Lutheran Hospital.

Dr. David J. Davis, of the Memorial Institute for Infectious Diseases, has been appointed pathologist to St. Luke's Hospital.

Dr. Earl J. Brown, Chicago, was attacked near his home, January 23, beaten into insensibility, and robbed of money and jewelry.

Dr. Charles C. Kost, Dixon, has been appointed district surgeon for the Illinois Central Railroad, vice Dr. Abram L. Miller, resigned.

Dr. T. J. O'Malley of Chicago, a member of the staff of St. Mary's of Nazareth and St. Joseph's Hospitals, has been appointed by Mayor Busse as a member of the Board of Education.

Dr. D. W. Graham, formerly president and secretary of the State Medical Society, was recently operated on at the Presbyterian Hospital, for gall-stones in the common duct. His friends will be pleased to learn that Dr. Graham has made a rapid and satisfactory recovery from the operation.

NEWS ITEMS

—The Alton Medical Society has elected Dr. J. A. Cook, president; Dr. J. Bernard Hastings, secretary; and Dr. Waldo Fisher, treasurer.

—Dr. Elizabeth Cassidy, formerly of Vermont, was elected commissioner in Denver, Colo., at the last election, being the first woman to hold that office.

—The Iroquois Memorial Dispensary opened for its first clinic for tuberculosis patients, February 21. The clinic was in charge of Dr. Clarence L. Wheaton.

—An ordinance was passed January 30 providing for the purchase of land at North Fortieth and Bryn Mawr Avenues, Chicago, on which to construct a tuberculosis hospital.

—The Buffalo Rock Tuberculosis Sanitarium, near Ottawa, was closed November 1 and a receiver appointed on application of James Hopkins of Chicago. He holds a $7,500 mortgage against the property.

—The budget of the University of Illinois, which amounts to $3,551,000 asked to be appropriated by the present legislature, includes an item of $200,000 for the maintenance of the college of medicine.

—Nearly $13,000 will be available for the antituberculosis work in Illinois during the present year as the result of the Red Cross Christmas Seal campaign. The total number of seals sold in Illinois was 1,652,869.

—B. J. Crowe is said to have been fined $5 and costs, amounting in all to $9.25, in Freeport, February 14, for violating the section of the city ordinance which prohibits the promiscuous distribution of "patent medicine."

—George Griffith, Strasburg, an itinerant medicine vender, who was sued by the state's attorney for peddling medicine without a license, is said to have consented to settle without a trial on the imposition of a fine of $100 and costs and has promised to go out of business.

—Dr. J. A. Roy, Lewistown, against whom a judgment is said to have been secured some time ago for practicing medicine without a license, and against whom a fine of $100 was assessed, gave himself up to the sheriff, January 20, and will serve a sentence of twenty days in jail.

—Last month at a meeting of the stockholders and trustees of the College of Medicine and Surgery, Chicago, the last of the physiomedical colleges, the corporate name was changed to the Chicago Eclectic Medical College. It is stated that the school will hereafter be conducted as an eclectic college.

—The new free dispensary organized by the Springfield Tuberculosis Association was formally opened January 23. The dispensary will be opened from 10 to 11 on Monday, Wednesday and Friday mornings, and at the same hour on the first and third Saturdays of each month children will be examined and treated.

—The Missionary Sisters of the Sacred Heart of Jesus, Chicago, are erecting a new hospital to be known as the Columbia Extension Hospital for the free use of the deserving poor, regardless of race, creed or color. The institution is located at Lytle and Polk Streets and will be dedicated, it is expected, in April or May.

—A movement has been launched by Dr. W. J. Eddy for the establishing of a hospital at Shelbyville. Dr. Eddy states that $10,000 has been offered for a hospital fund, and thinks that $15,000 could be raised in addition. The matter will be brought before the Commercial Club, at its next meeting, for consideration.

—More than 200 physicians of Chicago have formed a Charles E. Merriam Club and elected the following officers: president, Dr. John M. Dodson; vice-presidents, Drs. Homer V. Halbert, Isaac N. Danforth, Albert J. Ochsner and James E. Stubbs; secretary, Dr. Ludvig Hektoen, and treasurer, Dr. Winfield S. Harpole.

—The president of the county board announced, February 14, the following attending staff for the Tuberculosis Hospital located on the county hospital grounds: chief of staff, Dr. Clarence W. Leigh, and members, Drs. Thomas A. Hogan, Clyde D. Pense, Frederick Tice, Arthur M. Corwin, Milton Mandel, and George B. Dyche.

—Dr. W. V. Guttery of Middletown, has been unfortunate in an investment in a coal mine at that place, and it now appears that the savings of a life-time have been lost. He has been obliged to take advantage of the bankruptcy law. His friends will sympathize with him in his misfortune.

—The final report of the chairman of the committee which had in charge the Charity Ball, shows that $26,599.08 is the net sum to be distributed. Of this the Children's Memorial and Presbyterian hospitals are to receive $5,500 each, the Alexian Brothers,' Chicago Lying-In, the Passavant Memorial and Provident hospitals, and the visiting Nurses' Association, each $2,250, and the German Hospital, $1,000.

—The Littlejohn College of 1408 West Monroe Street, Chicago, has brought mandamus proceedings against the State Board of Health in Cook County, because the board has refused to accept the school as a medical college in "good standing." Dr. James B. Littlejohn, secretary of the college, declares graduates have been denied permission to take the state examinations for licensed physicians. The school formerly was the "American College of Osteopathic Medicine and Surgery" and the state board has refused to recognize it because it was considered an osteopathic institution and not a medical college.

—The Dr. John Warner Hospital at Clinton is almost ready for opening. The delay is due only to the failure of some of the equipment and furniture to arrive. On the first floor of the institute are the superintendent's office, nurses' rooms, kitchen, dining room, reception room and men's ward, which latter is to be furnished by the Illinois Central Railroad. On the second floor of the institution are most of the private rooms, the woman's ward and children's ward. On the third floor the operating-rooms, dissecting-rooms, dressing-rooms and sterilizing-rooms will be located. The physicians of DeWitt County have decided to furnish the operating-room of the hospital.

—The physicians of Alton, with the indorsement of the Alton and Madison County Medical Societies, have undertaken a series of lectures on medical subjects to be given every two weeks for school children and their parents. The following will be the program of the lectures:

February 19—"Infectious Diseases: Invasion, Attack, How Controlled." Dr. James M. Pfeiffenberger.
March 3—"Tuberculosis: Prevention and Care of Disease." Dr. J. B. Hastings.
March 17—"Diseases of the Eye." Dr. Fred W. Jones.
March 31—"Diseases of the Nose and Throat." Dr. George E. Wilkinson.
April 7—"Fresh Air and Exercise." Dr. N. Garland Taphorn.
April 21—"Sick Room Management." Dr. Homer W. Davis.
May 5—"Mental Defects." Dr. William H. C. Smith, Godfrey.
May 19—"Care and Feeding of Babies." Dr. Frederick C. Joesting.
May 29—"Care of Teeth." R. E. Cockrell, D.D.S.

REMOVALS

Dr. H. N. Barth has moved from Chicago, to Rockford.
Dr. J. A. Logan of Murrayville has located in Tolono, Ill.
Dr. D. K. Pollock has removed from Little York to Albia, Iowa

Dr. L. P. Wineburg has removed from Lawrenceville, to Leland, Ill.

Dr. Wm. J. McClintock has removed from Springfield to Waycross, Georgia.

Dr. Rollo J. Grimes, formerly practicing in Marietta, has located in Jerseyville, Ill.

Dr. W. J. Marney, has removed from Granite City to 1548 Kedzie Avenue, Chicago.

Dr. Wilson Eubank of Farmer City has gone to Rhann, N. D., where he will practice his profession.

Dr. Rudolphi has sold his house and practice in Elliott and will leave the first of March for other parts.

Dr. Fred P. Crowder of St. Louis, Mo., has moved to Curran, Ill., and has taken the office of the late Dr. Redshaw.

Dr. J. H. Collins of Colfax has located at Wataga, Ill., after finishing a post-graduate course in the Chicago Hospitals.

Dr. Franklin Kelley, formerly of Kewanee, has opened an office in Green Valley, where he will practice his profession.

Dr. C. C. Ellis, statistician of State Board of Health, has resigned to take a position in the State Hospital at Bartonville.

Dr. Walter C. Bisson of Abingdon, Ill., will locate in Thermopolis, Wyo., where he has accepted a position in a sanitarium at Big Horn.

Dr. C. E. West of Lincoln has removed to Decatur, where he will take charge of the practice of Dr. S. L. Thorpe, who has been forced to take a rest for a time.

Dr. W. H. Holmes for some time in charge of the hygienic laboratory of the State Board of Health at Springfield, has resigned to accept a position as assistant physician on the staff of the Kankakee State Hospital.

MEDICAL SOCIETY NOTES

RESOLUTIONS ON THE ABUSE OF MEDICAL CHARITY

WHEREAS, The members of the West Side Physicians' Club come in daily contact with those who abuse the dispensary and hospital charities; and

WHEREAS, This abuse of medical charity both dispensary and hospital affects the practice and income of the medical profession; and,

WHEREAS, The Chicago Medical Society Committee on Abuse of Medical Charity has outlined a method and is collecting money to install the plan whereby the United Charities of Chicago shall investigate all cases; and,

WHEREAS, At an open meeting of the West Side Physicians' Club, Dr. Breakstone, one of our members, has outlined a plan that has been printed in the bulletin which we think more practicable; therefore be it

Resolved, That it is the sense of opinion of the members of the West Side Physicians' Club that the Chicago Medical Society should reconsider their action and consider the plans as laid down by Dr. Breakstone; and be it further

Resolved, That these resolutions be spread on the minutes of the West Side Club and that a copy be sent to the Chicago Medical Society and a copy to the ILLINOIS MEDICAL JOURNAL.

(Signed) N. LEUTZ, M.D., Chairman.
SAMUEL METCOFF,
ADOLPH J. NEWMAN,
N. SCHOOLMAN,
ERNEST H. LOEWINGER.

NEW INCORPORATION

—The Western College of Osteopathy, Chicago; capital $1,000; to conduct a college of osteopathy; incorporators, Peter Adams Schwarz, D.O., Frank Joseph Schwarz, D.O., Amante Rougetti, D.O.

MARRIAGES

OSCAR D. WHALIN, M.D., to Mrs. Emma Maxwell, both of Chicago, recently.

LOUIS R. WAYMAN, M.D., to Miss Lavica Etherton, both of Murphysboro, Ill.

CHARLES F. ELY, M.D., Chicago, to Miss Leila Fairbairn at South Bend, Ind., January 27.

PHILIP FRANK SHAFFNER, M.D., to Miss Beatrice Melanie Weil, both of Chicago, January 18.

ADRAIN J. DEHAAN, M.D., East St. Louis, Ill., to Miss Clara Ziegenhein of St. Louis, January 24.

JAMES G. LAMB, M.D., Fisher, Ill., to Miss Elnora Larson of Voorhies, Ill., at Bement, Ill., January 4.

GEORGE EMMET KNAPPENBERGER, M.D., Macomb, Ill., to Miss Agnes Carnduff of Ætna, Ind., January 26.

DAVID HENRY WORTHINGTON, M.D., Aurora, Ill., to Miss Hulda Henrietta Bettcher, at Iowa City, Iowa, January 17.

AMOS WILLIS BALL, M.D., Rushville, Ill., to Miss Dorothy Chatham of Watertown, Ill., at Princeton, Ky., January 14.

DEATHS

JOHN A. FITZGERALD, M.D., was found dead in his office in Chicago Heights, January 23, from valvular heart disease, aged 45.

JOSEPH M. WALLACE, M.D., one of Mercer County's oldest physicians, died at his home in Aledo, Feb. 15, 1911, of pneumonia.

E. B. STEPHENS, M.D., of Lawrence, Ill., unconscious for three days as the result of a runaway accident, died in a hospital, Feb. 5, 1911.

JAMES FAITH, M.D., Eclectic Medical Institute, Cincinnati, 1869; died at his home in Palmyra, Ill., January 18, from pneumonia, aged 69.

FRANKLIN BEDFORD, M.D., Rush Medical College, 1873; a practitioner since 1865; died at his home in Maple Park, Ill., January 15, aged 81.

L. D. FOREMAN, M.D., of Peoria, while repairing a leak in the roof of his house, fell a distance of thirty feet and broke his neck. Death was instantaneous.

JOHN C. DAVID, M.D., Hahnemann Medical College, Chicago, 1878; died at his home in Sandwich, Ill., February 2, from cancer of the esophagus, aged 62.